REYNOLDS, TORRY L., Ph.D. Faculty Opinions about Developmental Education Courses. (2015)
Directed by Dr. Deborah J. Taub. 123 pp.

Developmental education can be traced to the very beginnings of American higher education and is often a point of access for underprepared college students. Despite its historic presence, developmental education in the form of remedial courses has come under heavy criticism in the recent decades with some educational stakeholders citing costs to students and delayed credential completion as reasons to discontinue remedial courses. This study examines the development of faculty opinions about developmental education in the form of remedial courses as faculty opinions may influence the provision of remedial courses at colleges and universities. The results of the study indicate that institution type, faculty rank, and level of experience each contribute to the formation of faculty beliefs about developmental education. Understanding the factors that influence faculty beliefs will enable developmental education advocates to implement targeted interventions to increase faculty support of remedial courses.

FACULTY OPINIONS ABOUT DEVELOPMENTAL EDUCATION COURSES

by

Torry L. Reynolds

A Dissertation Submitted to
the Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Greensboro
2015

Approved by

Deborah J. Taub
Committee Chair

To all the phenomenal women who paved the path and those who will follow in my footsteps.

APPROVAL PAGE

This dissertation, written by Torry L. Reynolds, has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair Deborah J. Taub

Committee Members Terry Ackerman

Samuel Miller

R. Brad Johnson

March 2, 2015
Date of Acceptance by Committee

January 27, 2015
Date of Final Oral Examination

ACKNOWLEDGMENTS

I would like to thank my family-all of my cousins, aunts, uncles-for being there with me every step of my journey from Pre-K to PhD. I could never have done it without you. Thank you to my grandmother for teaching me to read, my father for loving me, my daughter for tolerating my long hour. I would like to offer a special thank you to my mother for being my rock and my foundation.

I would like to thank my committee for your support. Dr. Taub, you were my advocate from the moment I met you. Thank you for investing in me. You have done more to inspire me than you will ever know. Thank you, Dr. Miller, for providing me with new and innovative perspectives. Thank you, Dr. Ackerman, for inspiring me to be a quantitative researcher. Thank you, Dr. Brad Johnson, for your consistent encouragement.

Above all, I thank God for giving me grace and favor.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER I

INTRODUCTION

Economic shifts toward a highly skilled labor market have led millions to pursue college credentials (Federal Department of Labor, 2012). The need for higher education is so critical that President Obama issued an imperative calling all for Americans to commit to attending at least one year of college (American Association of Community Colleges [AACC], 2012). Despite the workforce demand for postsecondary credentials, there remains a persistent gap between high school graduation standards and college entrance requirements that has left many high school graduates underprepared for college level work. The gap in academic expectations between K-12 systems and post-secondary institutions has existed throughout the history of higher education in America; however, the means of addressing these incongruences have changed over the years (Brier, 1984). The issue is so deeply-rooted that Boylan, Bonham, and White (1999) stated "Only two things might reduce the need for developmental education in colleges and universities: a dramatic improvement in the quality of college preparation provided by public schools or a dramatic downsizing of postsecondary education" (p. 95).

Prior to the advent of community colleges, all institutions of higher education bore the responsibility of helping their prospective students reach academic expectations (Arendale, 2002b; Casazza & Silverman, 1996; Maxwell, 1997). These efforts ranged from tutoring incoming students to full-fledged academic preparatory academies. Even

prestigious colleges such as Harvard and Yale had some documented form of developmental education programs (Arendale, 2002b).

Currently, the responsibility of preparing high school graduates for college success has been largely removed from bachelor's degree granting colleges and universities and placed squarely on the shoulders of community college faculty and staff (Ignash, 1997; Markus & Zeitlin, 1993; Parker, Bustillos, & Behringer, 2010). Four-year institutions dramatically reduced their commitment to developmental education over the past fifty years by removing remedial courses from the curriculum, dissolving pre-college academic departments, and adopting selective admissions criteria as a means of weeding out undesirable applicants (Parker et al., 2010). Administrators at four-year colleges and universities justify their retreat from developmental education with the argument that they must preserve the academic integrity of the institution by restricting college admission to high school graduates who have demonstrated college readiness as evidenced by secondary school rank, grades, and standardized college entrance examinations (Cohen, 1998; Dougherty, 1994). However, this does not address inequality in the K-12 educational system nor do these measures of college readiness assess non-cognitive attributes that have been demonstrated to predict persistence and retention (Noonan, Sedlacek, & Veerasamy, 2005; Sedlacek, 2004).

Description of the Problem

The large-scale removal of developmental education at bachelor's degree granting institutions has had detrimental implications for post-secondary access and educational equity. It has, in effect, created a caste of high school graduates who are forced to attend

community colleges instead of enrolling in the four-year college of their choice. Forced community college enrollment disadvantages these students from the beginning of their college careers, making it less likely that they will earn their bachelor's degrees.

> Because students who begin at a community college are less likely than those who start at a four-year college to earn a baccalaureate degree, there is some danger in relying on the community college as the sole provider for remedial and developmental education. (Parker et al., 2010, p. 19)

Several scholars have documented this phenomenon with research findings that show that students who attend community colleges are more likely to be tracked into vocational education instead of transfer programs and that they are less likely to complete a bachelor's degree than students who begin college at a four-year schools (Alfonso, 2006; Dougherty, 1992).

Restrictive admissions criteria and other elitist practices have not fully eliminated the need for developmental education at bachelor degree granting institutions (Merisotis & Phipps, 2000). It has become clear that many high school graduates still need assistance to meet the academic rigor of the college curriculum (Parsad & Lewis, 2004). The question then becomes, if colleges and universities are admitting students who are underprepared for college level work, why are they reluctant to offer developmental education in the form of remediation?

One answer to the question is that state and institutional policies place restrictions on which institutions are allowed to offer remedial courses. Thirty-four percent of colleges and universities that did not offer developmental education in the form of remediation cited state or institution regulations that barred them from doing so (Parsad

& Lewis, 2004). In the case of public institutions, several state governments do not support remedial instruction due to the cost associated with such courses (Smith, 2012). Currently, four state university systems (The City University of New York, Indiana, South Carolina, and Tennessee) prohibit public four-year institutions from offering remedial courses, seven state university systems have restricted or eliminated state funding for remedial courses at public four-year institutions, and four additional state university systems have established requirements prohibiting the admission of students with remedial needs (Smith, 2012).

Argument against Restricting Developmental Education to Community Colleges

Although there were numerous benefits stemming from the advent of the American community college, scholars have criticized community colleges for the negative effects they had on student outcomes and success. Some critics believed that community colleges diminished students' academic aspirations (Clark, 1960; Brint & Karabel, 1989), whereas others declared that community colleges were developed solely to reinforce social stratification throughout the nation (Dougherty, 1994; Ayers, 2005). An early theoretical criticism of community colleges came from Clark's (1960) seminal article "The Cooling-Out Function of Higher Education."

Whereas community college advocates hailed the institutions for providing open access to higher education, Clark (1960) was one of the first to claim that community colleges sustained class inequalities. Clark perceived the demand for mass access to higher education was incongruent with four-year institutions' desire to remain selective. He argued that community colleges functioned to mediate the discrepancy between

students' high academic aspirations and the reality of limited educational opportunity; instead of allowing students to be demoralized by failure to gain admission to universities, community colleges provided an acceptable alternative for post-secondary credentials.

Clark (1960) exposed the channels through which community colleges lowered students' aspirations. He showed that the schools triggered a "cooling-out" process by deterring students from applying to four-year institutions and leading them toward terminal occupational degrees. Clark showed that the cooling-out occurred through five interacting practices: alternative achievement, gradual disengagement, objective denial, counselor consolation, and avoidance of standards.

Alternative achievement occurs when a student initially interested in earning a bachelor's degree settles for a lower credential at the community college. Such is the case when students change their degree programs from a transfer program to a terminal credential like an associate of applied science, a vocational diploma, or certificate program. Gradual disengagement refers to the phenomenon of students abandoning their hopes of earning a bachelor's degree because they encounter a series of barriers. For example, a student may choose not to transfer to a four-year institution because the state system of higher education has not made it possible for a seamless transfer from two- to four-year colleges and universities. Objective denial occurs when the institution presents a student's lack of success as a personal deficiency instead of addressing institutionally flawed practices that set students up for failure. Counselor consolation is the use of counselors and advisors to cajole students into feeling comfortable exchanging their

scholarly aspirations for vocational security. Finally, avoidance of standards is the process through which community colleges allow four-year institutions to maintain ambiguous policies and criteria. This can be illustrated in the use of the term "college level" at four-year school to prevent the admission of undesirable applicants even though there is no consistent benchmark as to what defines college level work.

Clark (1960) believed that the community college cooling-out process was purposely hidden from students to preserve the integrity of the institution:

> For an organization and its agents one dilemma of a cooling-out role is that it must be kept reasonably away from public scrutiny and not clearly perceived or understood by prospective clientele. Should it become obvious, the organization's ability to perform it would be impaired. If high-school seniors and their families were to define the junior college as a place which diverts college-bound students, a probable consequence would be a turning-away from the junior college and increased pressure for admission to the four-year colleges and universities that are otherwise protected to some degree. (p. 575)

Thus, the cooling-out process conceals the conflict between higher education aspirations and limited opportunity and allows four- year institutions to remain selective without evoking the anger of the public.

In the decades that followed Clark's work, much was written about the function and impact of the community college. Dougherty (1994) recognized the scholarly debate around community colleges and produced a review of the literature that examined the competing arguments. *The Contradictory College* laid out the dialogue of community college critics and advocates on three specific questions: (a) What are the effects of community colleges?; (b) What are the origins of the community college?; and (c) Why was the community college vocationalized so rapidly? (Dougherty, 1994).

Dougherty's (1994) research suggested that the community college has had both good and bad effects and was conceived for both publicly motivated and self-interested reasons. However, Dougherty found that most scholarship on the topic tended to be singularly focused--community college critics and supporters attributed the state of the institutions to one fundamental source of power, therefore failing to seriously consider alternative theories. Dougherty organized his text into three different theoretical paradigms to illustrate this point and labeled them the functionalist, the instrumental Marxist, and the institutionalist perspectives.

Functionalist advocates believe that the community college serves a critical need in society by providing college access, training mid-level workers, and preserving the academic excellence of four-year universities (Dougherty, 1994). They argue that state universities supported the growth and development of community colleges, viewing community colleges as a means to promote equality while allowing state universities to emulate the German model of education (Dougherty, 1994). Instrumentalist Marxists, on the other hand, align themselves with Karl Marx's theory that society is governed by class warfare (Dougherty, 1994). Instrumentalists are critical of community colleges, believing that they arose to serve the capitalist interest (Dougherty, 1994). Instrumentalist Marxists declare that the actual "role of the community college is to reproduce the class inequalities of the capitalist society" (Dougherty, 1994, p. 18). Institutionalists traced the origins of the community college to the efforts of administrators from state and elite universities to protect the "social exclusivity" of their institutions (Dougherty, 1994). They believed that community colleges were created and

still function to negotiate students' demand for college level positions and the fact that there is a limited supply of these positions (Dougherty, 1994).

Faculty and Developmental Education

In the organizational structure of higher education, stakeholders play specific roles to ensure the proper function of the institution. State and federal legislatures define legal, fiscal, and organizational guidelines for colleges and universities (Birnbaum, 1991). Boards of trustees serve as the official institutional authority (Birnbaum, 1991). Given the complex nature of higher education, the board of trustees often delegates responsibility to a university president and entrusts campus administrators and support staff with the daily operational functions of the institution (Kezar, 2011). Faculty members, on the other hand, work primarily in academic affairs and are recruited to teach, produce scholarship, and serve the larger community with their unique knowledge base.

As documented experts in their disciplines, faculty are best prepared to make decisions about academic content and rigor at the graduate and undergraduate levels. Faculty members subsequently have significant influence over the curriculum at American colleges and universities. Faculty design their courses and educational programs of study based on standards and competencies in the field of study. The Association of American Colleges and Universities (AAC&U) states that faculty are "responsible for establishing goals for student learning, for designing and implementing programs of general education and specialized study that intentionally cultivate the intended learning, and for assessing students' achievement" (2006, para. 3). The

National Education Association (NEA) echoes this sentiment in their statement on faculty governance in higher education. When considering the curriculum, the NEA firmly asserts that faculty should have jurisdiction to "determine the curriculum, subject matter, methods of instruction, and other academic standards and processes" and to "establish the requirements for earning degrees and certificates, and authorize the administration and governing board to grant same" (n.d., para. 1). Given their historical role designing the curriculum, the researcher concludes that faculty beliefs about and commitment to developmental education are instrumental in determining whether or not developmental education will be offered at their respective institutions.

Definition of Terms

For the purposes of this study, it is necessary to define developmental education as there is often confusion about its meaning within the academy. Developmental education is an umbrella category for a series of services that support the intellectual and personal growth of underprepared college students (National Association for Developmental Education [NADE], 2011). The term, adopted from student affairs rhetoric, appeared in the 1970s (Arendale, 2005). NADE (2011) defines developmental education formally as "a field of practice and research within higher education with a theoretical foundation in developmental psychology and learning theory… [that] promotes the cognitive and affective growth of all post-secondary learners" (para. 2). Developmental education can take many forms including personal, academic, and career counseling, tutoring, supplemental instruction, academic advising, mentoring, college

preparatory programs, freshman seminars, basic reading, writing, and math courses and life skills instruction (Arendale, 2005; NADE, 2011).

One problem scholars encounter in the discussion of developmental education is its link to remediation. The terms are often used interchangeably, signifying that they are one and the same. Not only is equating developmental education and remediation erroneous, but it also fails to acknowledge the breadth and scope of developmental practices. Much of the confusion stems from the fact that remediation was the primary term used by educators from the 1860s through the early 1960s (Arendale, 2005). Remedial education generally focuses on identifying cognitive skill deficits and using coursework to correct for presenting inadequacies (Parker et al.,). This objective is only one component of developmental education, which seeks to address students' academic, interpersonal, and psychological needs (Casanzza, 1999).

For the purpose of this study, the following definitions will be used:

Developmental Education Courses—Post-secondary courses designed to help students who have earned a high school diploma (or its equivalency) develop the academic skills necessary to be successful in college-level courses. Developmental education courses are generally not counted toward college graduation requirements and are often below the 100-course level.

Faculty—Individuals employed at post-secondary institutions for the purpose of teaching academic courses. They may hold academic rank titles of professor, associate professor, assistant professor, instructor, lecturer, teaching assistant or the equivalent of any of those academic ranks.

Four-Year Institutions—A classification of post-secondary education institutions that can award a bachelor's degree or higher.

Remedial Courses/Remediation—See above definition for developmental education courses as the terms developmental education courses and remedial courses are used synonymously in this study to coincide with the traditional use of the term in the literature.

Two-Year Institutions—A classification of post-secondary education institutions that generally includes community colleges, technical colleges, junior colleges, and accredited two-year proprietary schools. Two-year institutions vary in focus, but offer credentials such as certificates, diplomas, terminal associate degrees (Associate of Applied Science), and transfer associate degrees (Associate of Arts, Associate of Sciences, Associate of Fine Arts degrees).

Research Questions

This study examines the faculty beliefs about developmental education at three distinct types of institutions in higher education. The research will be guided by the following questions:

1. Are there significant mean differences in Faculty Beliefs Scale scores across institutional types?
2. Are there significant mean differences in Faculty Beliefs Scale scores across academic rank?
3. Are there significant mean differences in Faculty Beliefs Scale scores across academic discipline?

4. Are there significant mean differences in Faculty Beliefs Scale scores across levels of faculty experience with developmental education?
5. Are there significant mean differences in Faculty Beliefs Scale scores when examining the two-way interactions of the independent variables?
6. How well does a regression analysis of institutional type, academic rank, academic discipline, and experience predict Faculty Beliefs Scale scores?

CHAPTER II

LITERATURE REVIEW

This review of the literature will set the context of the proposed study in two parts. The first half of the chapter looks at the role of developmental education throughout the history of American higher education and the impact that developmental education, in the form of remediation, has on the graduation and persistence of underprepared college students. The second half of the chapter presents a model identifying the factors that contribute to the formation of faculty beliefs about developmental education.

Developmental Education in American Higher Education

Developmental education in American colleges and universities arose to address the incongruence between K-12 curricula and the admission requirements of colleges and universities. Its roots can be traced back as far as the 17th century in the form of tutoring (Arendale, 2002b). The field has evolved into a vast array of programs and services aimed at enhancing student growth and learning. Although developmental education has long been a critical component of higher education, it is frequently overlooked in the literature or regarded as a mark of academic inferiority (Arendale, 2002a; Stahl, 2002). However, a thorough examination of the practice demonstrates that developmental education has had a tremendous impact on higher education.

First Phase of Developmental Education

When higher education began to take its form in the American colonies, college admission was open to any White man who could afford to pay tuition. As colleges and universities began to develop academically based admissions requirements, the need for developmental education became apparent. Harvard University initiated the trend of selective admissions in 1642 by requiring its freshman class to read, write, and speak Latin and Greek (Arendale, 2002b). Yale soon adopted this requirement and later added that students pass exams rating skills in math (Arendale, 2002b). Several other colleges followed suit and required students to meet certain expected proficiencies before gaining admission to the institution.

The newly established admissions requirements posed a significant problem since most prospective students were grossly underprepared (Arendale, 2002b; Thelin, 2004). Arendale identified two prevailing reasons for the academic shortcomings. The first of these was the absence of a comprehensive public education—the paucity of public schools meant that only the wealthy and privileged had access to basic education. The second reason was that Americans were not well versed in classical languages.

Faced with the prospect of losing a significant number of enrollees, colleges turned to tutoring to supplement student learning. Arrangements were made for undergraduates to study under the tutelage of faculty or clergy affiliated with the institution until they were deemed adequately prepared to pass the admissions requirements (Arendale, 2002b). Even after being successfully admitted to college, many students found it difficult to meet the academic rigor of the Latin-based classroom. The

schools responded by assigning tutors to assist struggling students with language acquisition (Boylan & White, 1987).

Second Phase of Developmental Education

Tutoring remained the predominant form of developmental education until the mid-nineteenth century (Arendale, 2002b). The next phase of developmental education, remediation, spawned from passing of the Morrill Acts and the subsequent birth of new colleges and universities. The Morrill Acts of 1862 and 1890 authorized state acquisition of federal land for the purpose of establishing colleges that would teach practical skills to the general public (Morrill Act of 1862, Morrill Act of 1890). This legislation sparked an unprecedented expansion of higher education across the nation. The newly founded institutions granted college access to previously excluded segments of the American population for the sake of equity and workforce development (Casanzza, 1999; Thelin, 2004). Students at these schools, like the more privileged undergraduates before them, exhibited a great need for learning assistance because they had inadequate secondary schooling.

It soon became clear that colleges and universities would have to move from tutoring to a more intentional and efficient approach of accommodating marginal students. Widespread student under-preparedness ushered in a wave of courses in fundamental content areas such as writing, math, and spelling (Arendale, 2002a). Along with the introduction of remedial courses came the emergence of full academic departments dedicated to teaching basic skills (Brier, 1984). The Department of Preparatory Studies at the University of Wisconsin in 1849 is often cited as the first

systematic delivery of developmental education (Brier, 1984). Other schools followed the University of Wisconsin's lead and adopted similar programs at their own institutions. By 1889, approximately 80% of the post-secondary schools in America had some form of college preparatory program (Boylan & White, 1987). Preparatory programs were especially prevalent at women's colleges and Historically Black Colleges and Universities (HBCUs) during this time period when discriminatory practices largely prohibited women's and African Americans' access to quality secondary education (Boylan & White, 1987).

Contemporary Developmental Education

College preparatory programs offering remediation remained the most popular form of developmental education until the mid-twentieth century. An important factor weighing on the delivery of developmental education during this period was the creation of the community college. The advent of the community college offered an alternative to college preparatory programs by allowing students to complete remedial coursework outside of the baccalaureate institution (Markus & Zeitlin, 1993). Four-year colleges and universities subsequently reduced their commitment to college preparatory programs in favor of more selective admissions standards. Whereas relegating developmental education to community college may have benefitted four-year college academic rankings, it has had detrimental effects on retention for students requiring developmental education. For example, Moore, Jensen, and Hatch (2002) found retention for all developmental students was much higher for students attending four-year schools that those attending two-year schools.

Between the late 1970s and early 1990s more contemporary developmental education services emerged. Among these were counseling services, learning communities, and supplemental instruction. These services were classified as developmental education because they support the intellectual and personal growth of college students. However, they differed from preceding forms of developmental education because they did not target only underprepared students. Instead, they were open and available to the entire student population regardless of achievement level. Because of this, these innovations were not universally acknowledged as developmental education.

It is also around this time that developmental education in the form of learning centers and college access initiatives such as Federal TRIO programs, Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP), and others arose (Arndale, 2002b; Parker et. al., 2010). These programs, developed by the federal government as a part of the national War on Poverty, played a key role in providing financial support for veterans, low income and first-generation college students (Higher Education Act of 1965). The new practices represented a shift in developmental education to address students holistically. They also signified a concerted effort to reduce the stigma of receiving learning assistance at the college level.

Despite the advancement in the delivery of developmental education, the field has been the subject of heated debate in the early 1990s. Opponents of developmental education, including state government officials, called for a drastic reduction of developmental services. The crux of their argument rested upon the idea that

developmental education forced the public to pay for secondary education twice (Ignash, 1997). A second source of contention in the debate involved which schools should provide developmental education. Several scholars and legislators petitioned for the confinement of developmental education to technical or community colleges (Russell, 2008; Smith, 2012).

Developmental educators responded to these issues with arguments and research findings in support of the field. First, they called for developmental education to remain at all institutions of higher learning. Developmental educators argued that moving developmental education to two-year colleges would impose undue restraints upon economically disadvantaged and adult students (NADE, 1998) due to their restricted resources and financial obligations. Next, developmental educators argued that secondary schools generally only prepare the top students, while other students are left with "academic failure—or at least educational mediocrity" (Wilensky, 2007, p. 250). They also demonstrated that the public was not paying twice for pre-college courses because fewer than 40% of high school students had access to college preparatory courses in the first place (Saxton & Boylan, 2001). Developmental education proponents then produced studies verifying the efficacy and impact of developmental education in promoting equity and access, and they documented the fact that remediation accounted for less than 1% of post-secondary expenditures (Bettinger & Long, 2009; Moore, Jensen, & Hatch, 2002).

In spite of the evidence in support of developmental education, many colleges and universities decreased their commitment to developmental education programs. As of

2012, 22 state higher education systems had reduced or eliminated remedial courses and 4 states explicitly prohibited public four-year institutions from offering remedial courses (Smith, 2012). The effect of anti-remedial legislation has had a detrimental impact on the education of all student populations in need of developmental services to be successful in college. Such is the case of the City University of New York (CUNY) system. CUNY adopted a policy to limit developmental education to community colleges in 2000 (Russell, 2008). During the three years following this policy change at least 5,000 students were "de-admitted" from CUNY four-year colleges and did not enroll elsewhere (Russell, 2008). To this end, the dissolution of developmental education has been shown to directly relate to enduring issues of college readiness that impairs the educational and professional future of those seeking access to higher education at a four-year institution.

Academic Impact of Developmental Education

Although several studies have been conducted about the content and delivery of developmental education in the form of remediation, very few have assessed the effect of remediation on student success. Researchers suggest the problem with conducting studies of the impact of developmental education is that there is little standardization across institutions when it comes to the assessing the need for remediation, the assignment of remediation, and completion remedial course sequences (Boylan & Saxon, 2001). Of those select studies that examined remediation while controlling for the aforementioned challenges, the majority explored student outcomes by comparing underprepared students' performance against that of college ready students. Such comparisons are methodologically flawed and prone to erroneous conclusions because they do not account

for fundamental attributes, such as student ability and level of high school preparation that differentiates students taking remedial courses from the general college student body (Bettinger & Long, 2005).

Currently, there are only four groups of studies that employed statistical designs to control for selection bias and mediation effects associated with student demographics. These quasi-experimental studies are based on data from Ohio, Texas, Florida, and Tennessee. The research revealed mixed results concerning the effectiveness of developmental education courses. The studies and their finding are discussed below.

Bettinger and Long (2004) found support for the positive impact of developmental education. They conducted one of the only studies that looked exclusively at developmental education practices at bachelor-degree granting institutions. They studied 8,600 students at nonselective public four-year colleges and universities in Ohio to examine the effects of remediation. At the time of the study, all but two Ohio state institutions offered remedial courses. However, the standards for remediation were not consistent across institutions. A student could therefore be assigned to college level courses at one public institution in Ohio, but assigned to remedial courses if they attended another public institution in the state. The results of the study revealed that developmental education at four-year colleges and universities assisted students in enrolling in appropriate courses and could have a positive effect on student retention. The study also demonstrated that four-year institutions can and do incorporate developmental education courses while retaining a research focus.

The first research outcome that Bettinger and Long (2004) highlighted is that remediation at four-year institutions functions as an initial and early signal to students about their individual college readiness. The researchers suggested that many students enter college with inaccurate expectations of college level coursework or exaggerated assessments of their academic ability. Remedial courses subsequently served as sorting mechanisms that assisted students in aligning their skills with the proper level of instruction. The second important outcome of the study was that Bettinger and Long (2004) found that students who completed remediation persisted at a higher rate than similar underprepared students who did not take remedial courses. This finding suggests that remediation at four-year institutions serves as an active tool of retention.

Bettinger and Long (2009) followed their 2004 study of four-year colleges and universities with a comprehensive study of 28,000 underprepared students at both two- and four-year institutions in Ohio. They again found positive impacts for developmental education. They found that developmental education enhanced student persistence and graduation rate. Students who completed their remediation course sequences persisted at a rate of 12% above underprepared students who did not enroll in developmental courses. Although Bettinger and Long (2009) also found that students enrolled in remedial courses were less likely than college ready students to complete their bachelor's degree in four years, they found that the six-year graduation rate for remedial students was 11% higher than underprepared students who did not enroll in developmental courses. Bettinger and Long (2009) did not consider the delay in degree completion to reflect negatively on developmental education practices. They instead attributed it to the fact that student

students needed to complete remedial courses before they could register for college level courses. Furthermore, the delay in degree completion was not consistent across all remedial student populations. Bettinger and Long (2009) found that remedial students pursuing degrees in mathematically oriented majors were more likely to earn their bachelor's degree within four years than those interested in other disciplines.

Martorell and McFarin (2007) used a statistical analysis similar to Bettinger and Long in their 2009 study of remediation outcomes but with different findings. For their study, Martorell and McFarin (2007) collected a large sample (n = 453,380) of full-time, traditional-aged, first-year students who enrolled in two- and four-year public institutions in Texas. In addition to placement test scores, the researchers collected demographic data, including student ethnicity, age, and socioeconomic status, as a means of controlling for sample heterogeneity. This study differed from previous research as it focused on assessing the effectiveness of remediation in math and reading and labor market performance as measured by unemployment insurance earning statistics. Martorell and McFarin (2007) found that remediation produced no significant results in terms of student academic outcomes or labor market performance in Texas. The researchers suggested that their results contradicted those found in earlier studies because of the criteria used in sample collection. For example, Bettinger and Long (2009) restricted their sample to students who took the ACT or SAT. The sample used by Martorell and McFarin (2007) did not consider ACT or SAT scores, so students in their study might have been of lower ability and therefore academically different from those in the Bettinger and Long (2009) study.

Calcagno and Long (2008) found both benefits and shortcomings in the effects of remediation. They focused their research on a sample of 100,000 students from Florida's state system of community colleges. The study was built upon the premise that the students just above and below the placement test cut off scores are academically similar. Under this assumption, any differences in academic performance could be attributed to developmental instruction. Students in the study enrolled in developmental math and reading courses completed more academic credits overall. Nevertheless, there was no statistical difference between remedial and college level student performance in regards to the number of transferable (non-remedial) credits earned. The researchers concluded that their results showed developmental instruction had a positive effect on early college persistence that fades over time. The time-limited effect of developmental courses on the persistence of underprepared students could be attributed to the "cooling-out function," in which community college students are deterred from their original academic goals of completing a degree or transferring to a four-year institution (Clark, 1960).

Most recently, Boatman and Long (2010) found some support for remedial education. They evaluated the academic progress of students in Tennessee at various levels of developmental instruction. They compared underprepared students who placed just above remedial requirements (enrolled in college-level courses), students who placed in the highest level of developmental instruction, and students who placed in the lowest level of developmental instruction. Consistent with earlier studies, Boatman and Long (2010) found that remediation did not have strong positive effects for students who placed around the cut-off score. The researchers did, however, find positive results for

students in the lowest level of remedial writing instruction. Students in the study who took the lowest level of remedial writing earned higher grades in their first college-level composition course than their non-remedial peers. They also found positive effects on student persistence, college-level credit accumulation, and degree completion for students who completed the lowest levels of remedial writing. Boatman and Long (2010) concluded that the remedial writing taught fundamental skills resulting in sustained academic improvement in college level courses and long-term persistence.

Limitations

There are three major limitations in the results of these quasi-experimental studies on the effects of developmental education in the form of remediation. First, Bailey (2009) suggested that remediation showed mixed results because existing research did not focus on the progress of students who completed all recommended developmental education courses. Bailey (2009) argued that students in developmental courses appear not to meet standard benchmarks for academic success because fewer than half of these students complete all of the courses prescribed for their individual academic deficiencies. Since most of the students in the study samples did not receive their "full developmental education treatments," one can conclude that results of the studies are not representative of true impact of remediation (Bailey, 2009, p. 19).

The second limitation is that, with the exception of the most recent study conducted by Boatman and Long (2010), research was conducted with students whose placement test scores fell just above or just below the institutional cut off scores. The studies using samples around the cut off scores subsequently did not assess the

effectiveness of developmental education for severely underprepared students, possibly skewing the results and conclusions of the statistical analyses.

A final limitation is the reliance on cognitive skills assessments. Despite controlling for differences in student demographic traits, the results of the aforementioned studies may still be biased due to differences in students' non-cognitive attributes. Sedlacek (2004) argued that tests commonly used for academic placement, such as the ACCUPLACER and COMPASS, are effective in measuring cognitive skills, but ignore non-cognitive characteristics such as motivation and familial support that are essential to student success. Future research assessing the effectiveness of developmental education should incorporate measures of non-cognitive skills both before and after developmental instruction to assess total skill gains.

Summary

The limited published research about the impact of developmental education in the form of remediation has provided mixed results. While these results suggest that there is still improvement to be made in facilitation of remedial courses, there is no evidence to support the elimination of remedial courses at any institution of higher education. Remediation is often the only viable option for students to acquire the skills and competencies necessary to tackle college-level course material. Therefore, elimination of remediation would effectively close the doors of higher education to already marginalized populations, including students of color and low-income students who are most likely to require remedial coursework (Parker, 2007). Colleges and universities should subsequently seek to enhance existing developmental education

programs and provide remedial coursework as a means of preserving educational access and inclusion.

Faculty Beliefs about Developmental Education

Because faculty have historically controlled the curriculum in higher education (Cohen & Kisker, 2010), their beliefs about developmental education are critical to the delivery of developmental education on their campuses. Bustillos (2007) proposed a framework (see Figure 1) to describe the development of community college mathematics faculty beliefs about developmental education. The framework operationalized faculty beliefs as a product of four compounding factors: the historical context and mission of the institution, early faculty training and socialization, experience with remedial courses, and the institutional context.

From Bustillos's (2007) framework, this study will examine faculty beliefs about developmental education across institutional types. The current study will show how the historical mission and the institution type where the faculty member is employed, the early training and socialization of the faculty member into the profession, and the faculty members' experiences with developmental education all interact with one another to influence faculty beliefs. The Bustillos model was adapted in this study by the removal of early training and socialization as a factor influencing faculty beliefs. This removal was done under the assumption that most faculty would have receive training at a research institution and therefore have similar socialization into the professoriate. For the purposes of this study, the researcher will focus on three types of higher education

institutions: the research university, Historically Black Colleges and Universities (HBCUs) and the community college.

Context of Institutional Type

Research Universities

There were nine colleges in the colonies just before the American Revolution: Harvard College (1636), College of William and Mary (1693), Yale College (1701), the College of New Jersey (1747, later renamed Princeton), King's College (1754, later renamed Columbia), the College of Philadelphia (1749, later renamed the University of Pennsylvania), Rhode Island College (1764, later renamed Brown), Queen's College (1766, later renamed Rutgers) and Dartmouth College (1769) (Rudolph, 1962). These early American colleges were closely modeled after institutions in England, namely Oxford and Cambridge, and their curricula almost exclusively focused on religion and the liberal arts (Graham & Diamond, 1997).

The mission of higher education evolved after the Revolution to reflect the changing national landscape and economic agenda. It was at this time that there was the emergence of institutions such as the University of Georgia (1785) and The University of North Carolina (1786), which offered courses in agriculture, botany, and architecture in addition to liberal arts (Thelin, 2004). Years later, private institutions, including Johns Hopkins University (1876), Clark University (1887), and the University of Chicago (1890), began to adopt German university prototypes that emphasized the value of research and graduate-level instruction (Thelin, 2004). Nonetheless, the large-scale

implementation of research universities did not occur until the federal government passed the Morrill Acts of 1862 and 1890.

The impact of the Morrill Acts. The need for more effective and efficient agricultural production in the era surrounding the Civil War led the federal government to invest resources in higher education. The primary means of federal funding came in the form of the Morrill Acts of 1862 and 1890. Under the Morrill Act of 1862, states were allocated 30,000 acres of federal land for each congressional representative from that state for the endowment of state colleges and universities. States would in turn sell these grants of land and use the funds to found public universities that educate the general public and teach practical skills. The Morrill Act of 1890 extended the reach of the first act to provide more funding for land grant institutions and to address the educational needs of newly-freed African Americans.

While the Morrill Acts gave away land freely, they provided clear directives regarding the mission of the institutions they sponsored. The language of the Morrill Acts is a clear indication that colleges and universities were being prompted to include vocational training and engage in practical research. The 1862 Act mandates states using land grant funds to endow or support:

> at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life. (Morrill Act of 1862, sec. 4)

Thus, with the Morrill Acts we see a shift in the primary mission of American higher education and the establishment of federal support for teaching, research, and public service.

Contemporary research universities: Classification and characteristics. Research universities remain a distinct and prestigious group of schools within the American higher education system (Cohen & Kisker, 201; Parelius, 1993). Research universities enroll just under one-third of undergraduate students in the United States (U.S. Department of Education, National Center for Education Statistics [NCES], 2012) and they often attract the best and brightest students in the country. Students are drawn to research universities because they are often well-known and well-respected institutions, they offer degrees in a wide range of disciplines, and they have extensive resources available for student use.

Research universities span such a wide range of student enrollment, curricular focus, and selectivity that several organizations have taken steps to define the institutional type. The Carnegie Foundation for the Advancement of Teaching, the leader in the field of higher education classification, identifies research universities as institutions that confer at least 20 research doctoral degrees (Carnegie Foundation, n.d.). The most recent edition of the *Carnegie Classification of Institutions of Higher Education* designated three categories of research universities: RU/VH-Research Universities (very high research activity), RU/H-Research Universities (high research activity), and DRU-Doctoral/Research Universities (Carnegie Foundation, 2010).

According to this classification system, there are currently 267 research universities in the United States (Carnegie Foundation, 2010).

The curriculum and faculty at research universities differ from other institutional types given that activity in both areas is driven by the primacy of research. For example, the curriculum at research universities consists of specialized instruction in a wide range of disciplines. Research universities contrast with community colleges, which offer a range of vocational education and introductory level college courses (Carnegie Foundation, 2010). They differ from baccalaureate colleges, which provide a breath of courses in arts and sciences (Carnegie Foundation, 2010). Research universities differ from special focus institutions, which concentrate their efforts on a specific field, such as conservatories of music (Carnegie Foundation, 2010). The role of faculty is also different at research universities. For instance, faculty at American institutions of higher education are generally assigned to teach courses and serve the broader community. Faculty members at research universities have teaching and service responsibilities as well, but they are also required to devote a large portion of their time to expanding the professional body of knowledge through research (Cohen & Kisker, 2010). At many research universities, research is seen as the primary role of the faculty and research outputs (often in the form of publications, patented products, and the receipt of coveted research grants) are the principle means of performance evaluation (De Simone, 2001).

Historically Black Colleges and Universities

Historically Black Colleges and Universities (HBCUs) are defined as accredited institutions "established prior to 1964, whose principal mission was, and is, the education

of Black Americans" (20 U.S. Code § 1061). Since their inception, HBCUs have made incredible contributions to the advancement of African American students. HBCUs provided educational access and inclusion for African Americans in a time when they were prohibited from enrolling in most existing post-secondary institutions. Today, HBCUs continue to serve as enrichment centers for African Americans facing racial and economic discrimination.

The first HBCUs appeared in the North shortly before the Civil War. Among these are Cheney University (1837) and Lincoln University (1854), both in Pennsylvania, and Wilberforce University in Ohio (1856) (Brown, Donahoo, & Bertrand, 2001). Wilberforce has the notable distinction of being the first HBCU to be owned and operated by African Americans (Brown et al., 2001). In the period following the end of the Civil War, HBCUs began to appear across the nation under the sponsorship of private religious institutions and the federally supported Freedman's Bureau (Gasman, 2008).

As the newly founded institutions began to develop, administrators were compelled to define the academic scope and purpose of HBCUs. The search for instructional direction incited a debate that was later fueled by the intellectual dialogue of W. E. B. DuBois and Booker T. Washington (Brown et al., 2001). Both prominent African American scholars in late 19th century, DuBois and Washington held divergent views about the role of the Black college. DuBois argued that Black college curricula should focus on the liberal arts and believed that a background in the humanities would allow for the creation of the "talented tenth" who would lead the race into self-determination (Brown et al., 2001). Washington, on the other hand, believed that African

Americans should focus their energies on learning trades and other forms of skilled labor (Brown et al., 2001). With vocational training, Washington contended, Blacks would be able to earn a living wage and pull themselves out of bitter poverty (Brown et al., 2001).

Following the lead of DuBois and Washington, many HBCU administrators structured their school's curriculum around their preferred ideology. Tuskegee, Hampton, and Benedict Institutes, for example, embraced vocational training while Fisk, Howard, Spelman, and Morehouse championed the liberal arts (Jackson, 2001). Whatever their chosen focus, all HBCUs had to first deal with the fact that the majority of matriculating students were significantly underprepared for college level work (Jackson, 2001). HBCUs were subsequently required to supplement academic deficiencies by providing remedial instruction (Gasman, 2008). The need for remediation came not from a lack of aptitude, but as a product of segregationist policies that prevented Black children from attending quality primary and secondary institutions (Gasman, 2008).

Although racism largely prevented Blacks from obtaining formal education earlier in American history, federal anti-segregation legislation in the mid-twentieth century revolutionized educational access for African Americans at all academic levels. Court rulings and congressional acts such as *Brown v. Board of Education of Topeka* (1954) and the Civil Rights Act of 1964 brought an end to legal racial discrimination in education. This resulted in K-12 school systems and post-secondary institutions becoming racially integrated for the first time. Some colleges and universities chose to apply the legislation nominally, continuing to admit a predominately White student body,

while others embraced the opportunity to diversify their student body by taking an aggressive approach to recruiting Black students. A number of historically White institutions (HWIs) even implemented programs and services to support the positive racial identity development of their African American students.

Despite all of their progressive outcomes, the new anti-discrimination laws had an unintended negative consequence for HBCU enrollments. Whereas HBCUs had been their only viable option for higher education in the past, African Americans now had the choice of applying to thousands of HWIs (Gasman, 2008). The shift of African American students from HBCUs to HWIs due to desegregation was so dramatic that it was labeled the second Great Migration (Allen & Jewell, 2002). Roebuck and Murty (1993) indicated that 75% of African American undergraduates attended HBCUs in the 1950s. By 1976 this number dwindled to only 18.4% (Provasnik & Shafer, 2004), and by 2007 a mere 11% of African American college students attended an HBCU (Aud et al., 2010).

Community Colleges

Community colleges began to appear in the United States around the turn of the twentieth century. Modeled after the German gymnasium system, which used six-year high schools and two-year colleges to teach college preparatory courses, community colleges were originally created to provide an alternative to beginning a bachelor's degree at a four-year institution (Beech, 2011; Witt et al., 1994). Community colleges have expanded in mission, size, and function since their inception. Public community

colleges now serve the needs of multiple stakeholders and enroll over 38% of all college undergraduates in America (NCES, 2011).

The foundation of the American community college can be traced to the work of several influential university administrators. William Rainey Harper from the University of Chicago, David Starr Jordan from Stanford University, and Alexis Lange from the University of California at Berkeley are often credited with spreading the concept of the junior college throughout the nation (Beach, 2011; Bragg, 2001). These scholars spoke frequently about the benefits of separating the first two years of undergraduate study from the final two years. William Rainey Harper made history in 1901 when he joined with J. Stanley Brown, the superintendent of the Joliet, IL township high school, to establish the first public community college, Joliet Junior College (Joliet Junior College, n.d.).

By 1910, there were approximately 25 public community colleges in America. This number grew to 325 in 1927 (Beech, 2011). However, the first major expansion of American community colleges occurred during the period following the end of World War II (Witt et al., 1994). Their enrollments nearly doubled between 1944 and 1947 (Witt et al., 1994). The community college also became the center of national attention because of the recommendations of the 1947 Truman Commission Report *Higher Education for American Democracy* (Beech, 2011).

Higher Education for American Democracy was sponsored by President Harry S. Truman to assess the condition of post-secondary education (Beech, 2011; Zook, 1947). The commission suggested that America would benefit from the development of a public

network of colleges providing education to a broad range of students at minimal cost in addition to serving community needs (Zook, 1947). Subsequently, community colleges moved towards becoming comprehensive institutions (Beech, 2011). They added occupational training, continuing education, and community services to their mission and program offerings (Beech, 2011).

In the 1960s, community colleges experienced another significant expansion (Witt et al., 1994). The number of community colleges reached over 900 in 1967, and student enrollments soared from 600,000 in 1960 to almost two million in 1969 (Beach, 2011). The largest increases in enrollment came as a result of the Baby Boomer generation entering college and the return of Vietnam War veterans (Kane & Rouse, 2004). A portion of this growth could also be attributed to the rise in the number of non-White students attending college following the historic *Brown v. Board of Education* decision (Witt et al., 1994).

During the 1970s and 1980s, most community colleges were redefined and restructured to be all-inclusive educational facilities with multiple curricular tracks (Beach, 2011). Community colleges began to focus more explicitly on vocational training at the expense of the general education transfer programs. The colleges also amended their course offerings to accommodate the needs of the changing student body, which consisted of many part-time, academically underprepared, and minority students (Meier, 2008, p. 270).

Since the 1990s, community colleges have continued to expand in size and curricular focus. The American Association of Community Colleges (2011) records

1,167 community colleges with over 12.4 million students attending in 2011. Most community colleges have retained a core curriculum of two-year transfer degree offerings and terminal vocational credentials, but the mission and function of community colleges as an institutional collective in the twenty-first century remains undefined (Bailey & Morest, 2006; Dougherty & Townsend, 2006).

Institutional Context and Faculty Beliefs

Given that historical mission and institutional context impact faculty beliefs about developmental education, it is reasonable to conclude that community college faculty attitudes about developmental education are much more favorable than faculty at four-year institutions and HBCU faculty will support developmental education more than faculty at research institutions. Faculty at community colleges will be influenced by the institutional commitment to comprehensive educational programs and open access education. Likewise, faculty at HBCUs will likely adopt the equity-based mission of the institution and welcome students from a wide range of educational backgrounds. Faculty at research institutions will be most resistant to developmental education because these schools focus on research, selective admissions, and prestige.

Faculty Training and Socialization

Virtually all faculty members in higher education have earned graduate degrees because postsecondary regional and national institutional accrediting agencies require course instructors to have a demonstrated mastery of the subject they are teaching (United States Department of Education, 2012). Therefore, researchers conclude that faculty receive most of their training and socialization during their time as graduate

students (Reybold, 2003). Faculty are formally trained in their academic discipline through coursework and educational products such as master's theses and doctoral dissertations. Socialization, on the other hand, occurs both formally and informally (Reybold, 2003).

Socialization is defined as "the processes through which individuals gain the knowledge, skills, and values necessary for successful entry into a professional's career requiring an advanced level of specialized knowledge and skills" (Weidman, Twale, & Stein, 2001, p.11). Graduate student socialization takes place through several formal and informal means such as interactions with program faculty, peers, and administrators. Weidman, Twale, and Stein's (2001) model of graduate student socialization illustrates said processes in detail (see Figure 2).

Given that faculty receive their advanced degrees from research universities and, therefore, their early training and socialization into the profession, one can conclude that faculty assumed the values and beliefs associated with that institutional type. It is subsequently necessary to examine the messages about developmental education promulgated at research institutions in order to understand how faculty are socialized to the topic.

Research University Faculty and Developmental Education

Parelius (1993) performed an organizational analysis to evaluate the beliefs and behaviors of research university faculty regarding developmental education. He identified four organizational features that lead to the marginalization of developmental

education: the primacy of research, academic screening, loose coupling, and environmental vulnerability.

In relation to the primacy of research, Parelius (1993) examined the impact that an emphasis on research productivity has on faculty commitment to developmental education. He argued that the high premium placed on research productivity leads faculty to invest themselves in practices most closely aligned with research. Parelius (1993) further explained that "the goal hierarchy and reward structure of research universities assure that remediation efforts in support of poorly prepared students will have low priority for most professors" (p. 93). Parelius (1993) subsequently concluded that faculty choose to be uninvolved with developmental programs because they believe developmental education holds little value in terms of securing tenure, university resources, or professional prestige.

Parelius (1993) focused on admissions policies and entry-level courses at four-year institutions for the screening portion of his organizational analysis. Parelius (1993) argued that, although faculty often champion stringent admissions policies because they believe the policies promote high academic standards and achievement, faculty were essentially expressing their disinterest in supporting the academic development of at-risk students. Parelius (1993) indicated that student screening also takes place in the university classroom. If a student is fortunate enough to make it through the admissions screening process, that student may still fall victim to academic department-based screening. This often takes the form of academic departments that design introductory

level courses to be so challenging that they "weed out" all but the strongest students (Parelius, 1993).

The third organizational structure Parelius (1993) identified as limiting the progression of developmental education at four-year institutions is the loose coupling of university offices. Universities are often organized into specialized units that have only loose affiliation with each other (Smerek, 2010). The separation of academic departments by discipline within a college is an example of such specialization. Parelius (1993) argued that loose coupling allowed developmental and academic support programs to exist in isolation of core academic activities, so faculty subsequently disregard developmental education as superfluous. Despite faculty apathy/antipathy towards the field, Parelius (1993) contended that developmental education is "both more common and more important to core university activities than most professors realize" (p. 91).

The final organizational feature discussed in Parelius (1993) analysis is environmental vulnerability. Public colleges and universities are funded in part by federal and state tax revenues. This resource dependency obliges schools to appease the tax paying public and elected officials (Dougherty, 1994). Parelius (1993) identified developmental education as a means though which public research universities garner community support:

> Remedial programs embody and symbolize commitment to inclusive, democratic values and to minority opportunities. They shield the university from charges of exclusivity and elitism . .. for vulnerable state universities, academic support programs provide an indispensable democratic appearance to the public and its political representatives. (p. 97)

Hence, resource dependency describes the incentive for many research institutions to keep remedial courses in the official course catalog even though they do not actually offer the courses to students.

In summary, three of the factors identified by Parelius (1993)—the primacy of research, admissions screening, and loose coupling—act against the inclusion of developmental education at research universities, whereas only one—resource dependency—provides incentives in support of it. Therefore, it can be concluded that faculty trained at research universities will internalize the consistent negative messages about developmental education because it appears to be incongruent with the values of their professional socialization. These faculty members will retain disparaging opinions about developmental education unless they have positive experiences with the practice.

Experience with Developmental Education

Experience with developmental education can come in one of three forms: (a) faculty members can teach developmental education courses, (b) faculty members could have received training about developmental education, or (c) faculty members could have taken developmental courses during their K-12 or undergraduate education. The probability of faculty members having taught a developmental education can be determined by looking at the instructional type, professional rank, and academic discipline in which the faculty member holds their primary teaching assignment. Conversely, there are no clear indicators outlining the probability that a faculty member has received training about developmental education or taken a developmental education course.

Teaching Developmental Education Courses

Institutional type. The National Center for Education Statistics (NCES) sorts national data on developmental education in the form of remediation regularly. The most recent data showed that public two-year institutions offered the widest selection of remedial courses at a rate 18-29% above any other type of post-secondary institution (Parsad & Lewis, 2004). The data also revealed that 23.9% of students at two-year colleges, 24.6% of Black students at HBCUs, and 17.2% of students at research universities enroll in at least one remedial course (Li, 2007; Parsad & Lewis, 2004). The higher concentration of underprepared students at community colleges and HBCUs makes sense given that virtually all community colleges are open admissions institutions and more than half of all HBCUs are open access or minimally selective (Li, 2007; Parsad & Lewis, 2004). Taken together, this information suggests that faculty at community colleges are more likely to teach developmental courses than their faculty members at HBCUs, and HBCU faculty are more likely to teach developmental courses than faculty members at research universities.

Faculty rank. Academic rank factors into a faculty member's experience with developmental education because rank is tied to teaching assignments. Generally speaking, non-tenured faculty are assigned primarily to teaching roles whereas tenured faculty teach fewer classes to accommodate their research and service obligations. Furthermore, one's academic rank is connected to academic freedom and shared governance structures (Morrison, 2008). Non-tenured faculty are often restricted in the ability to choose what they teach (Nelson, 2011). Tenured and senior faculty, on the

other hand, have greater authority in choosing the content and educational level of the course, and they have a voice in the types of courses offered at the institution.

Most U.S. colleges and universities use a similar ranking system based on full-time/part-time status and tenured/non tenured distinctions. The titles instructors, lecturer, teaching assistant (usually a graduate student), and adjunct are all designations for part-time, non-tenured faculty members (Shamos, 2002). These individuals are hired by an institution to teach courses, but they are not expected to participate in research or service projects. As a consequence of their status, these faculty members do not have the academic freedom and shared governance privileges afforded to tenured faculty (Morrison, 2008). They are often appointed to teach entry-level courses which cover introductory topics and tend to enroll large numbers of students (Cohen & Kisker, 2010).

Clinical faculty and assistant professors are two common designations for full-time, non-tenured faculty (Boston University, 2007). The primary assignment of clinical faculty members involves the practical instruction of graduate and undergraduate students. Although clinical faculty also may take on administrative responsibilities, they are not generally engaged in research activities (Boston University, 2007; Shamos, 2002). Assistant professors are entry level faculty members pursing tenure. They have all of the responsibilities of tenured faculty including teaching, research, and service; however, assistant professors have little control over the courses that they teach because they do not have academic tenure (Boston University, 2007; Shamos, 2002; University of North Carolina at Chapel Hill, 2014).

Associate professors and full professors are senior level, full-time faculty members. Having earned academic tenure, they wield the most power and authority in the faculty ranks (Boston University, 2007; Shamos, 2002; University of North Carolina at Chapel Hill, 2014). Associate professors and full professors often choose to teach upper-level, specialized courses because they have an established expertise in a specific area of scholarship. They also tend to shy away from labor intensive introductory courses unless they have a vested interest in a topic (Cohen & Krisker, 2010).

When applying academic rank to the likelihood of teaching a developmental course, it is clear that part-time, non-tenured faculty have highest probability of being assigned to teach developmental education courses while associate and full professors are the least likely to provide developmental instruction. This assumption is corroborated by data showing that between two thirds and three fourths of all developmental education courses are taught by part-time faculty members. Additionally, Bustillos and Parker (2012) found evidence signifying that senior faculty who teach developmental courses "do so with less enthusiasm than if they were teaching the more 'prestigious' advanced courses" (para. 2).

Academic disciplines. Most remedial instruction is concentrated in the scholarly disciplines of mathematics and English. Therefore, the academic department in which the faculty member holds his or her primary teaching load affects faculty experience with teaching developmental education courses. For example, of those colleges and universities that provide developmental education in the form of remediation, 71% offered remedial math courses, 68% offered remedial writing courses, and 56% offered

remedial reading courses (Parsad & Lewis, 2003). Only 23% of these same institutions had developmental education courses in subject areas other than math, writing, and reading (Parsad & Lewis, 2003). Courses taught outside of the mathematics and English departments were typically structured to help students learn the fundamentals of the sciences, English as a Second Language (ESL), study skills, and computer operations (Parsad & Lewis, 2003).

Training about Developmental Education Courses

As early as 1967, the American Association of Community Colleges called for graduate schools to educate future faculty members concerning the nuances of teaching underprepared students (Harris, 1983). Decades later, Boylan (2002) echoed this sentiment, calling for all faculty teaching developmental courses to "undergo detailed orientation to the mission goals, objectives and expectations of developmental education" (p. 15). He believed that doing so would increase the likelihood that faculty would implement best practices and theory when providing remedial instruction.

Whereas there is a substantial gap in the literature regarding the impact of training on faculty attitudes about developmental education, research on college students with learning disabilities provides insight into the issue. Like underprepared college students, college students with learning disabilities face significant barriers to academic success in higher education. Researchers found that faculty training was associated with positive attitudes about working with disabled students (Leyser, Greenberger, Sharoni, & Vogel, 2011; Murray, Lombardi, Wren, & Keys, 2009). Coursework in working with disabled students and faculty attendance at workshops were more highly correlated with positive

attitudes than less directive forms of training such as reading printed materials or visiting websites (Murray et al., 2009). Taken from this information, faculty who receive training about developmental education should have more favorable attitudes towards underprepared students and remediation. Training should acclimate faculty to the practice of developmental education and prompts faculty empathy for students.

Taking Developmental Education Courses

Currently, there is no literature published about faculty who have taken developmental education courses. However, it can be inferred that a faulty member's experience taking developmental education courses would affect their attitudes and beliefs about the practice. Faculty members have demonstrated their personal scholarly aptitude and performance through the completion of their advanced college degrees. It is subsequently reasonable to conclude that faculty members excelled academically and took few, if any, developmental education courses while they were students. This lack of experience taking developmental education courses combined with their own high levels of academic achievement may cause faculty members to develop negative opinions of underprepared students (Bustillos, 2007). Conversely, those faculty who have taken the courses should be more sympathetic to the plight of underprepared students and should have a more favorable attitude towards the practice of remediation.

Summary of Literature on Faculty Beliefs

Because faculty members' experience with developmental education influences their beliefs about the practice (Bustillos, 2007), it is important to identify and evaluate the methods through which faculty acquire said experience. The literature examines the

factors that influence the probability that a faculty member will teach developmental education course. The literature indicates that faculty of lower academic rank, those teaching English or mathematics, and those teaching at community colleges have the highest probability of teaching developmental courses. Faculty experience with developmental education also can come through taking developmental courses and receiving training in the facilitation of developmental courses; however the lack of research in these areas does not allow for accurate predictions about which faculty are most likely to gain this type of experience.

Summary

This chapter has reviewed existing literature on the history of developmental education in higher education, the impact of remediation, and the factors that contribute to the formation of faculty beliefs about developmental education. As an aggregate, the theories, models, and historical context presented in this chapter provide the framework through which one can study the relationship between faculty beliefs and the provision of developmental education in the form of remediation. This framework also allows for the operationalization of the three variables that lead to the formation of faculty beliefs about developmental education: institutional context, professional socialization, and faculty experiences with developmental education.

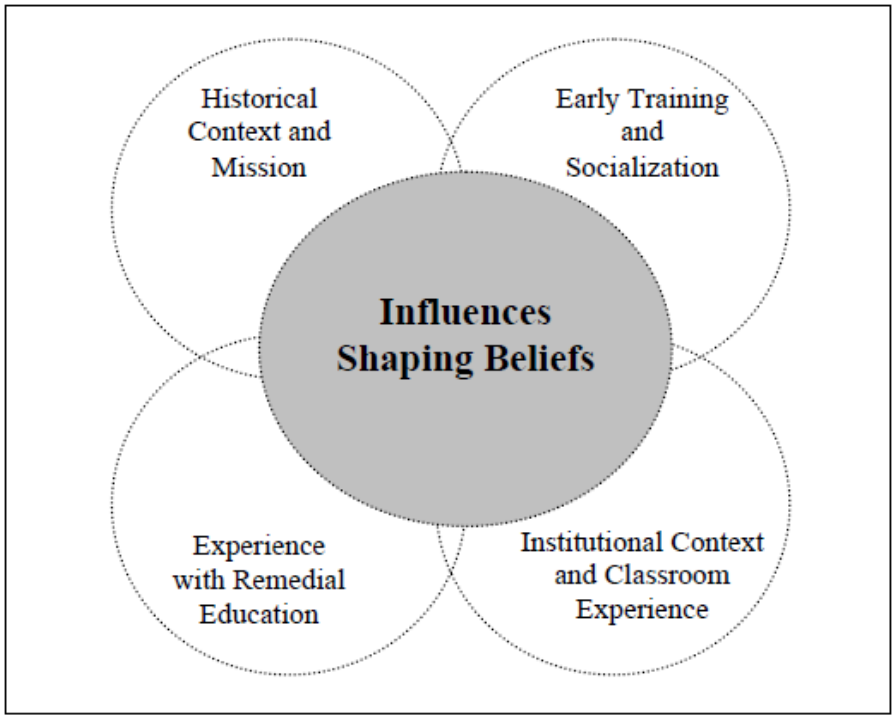

Figure 1. Bustillos's Model of Influences Shaping Community College Faculty Members' Belief Systems.

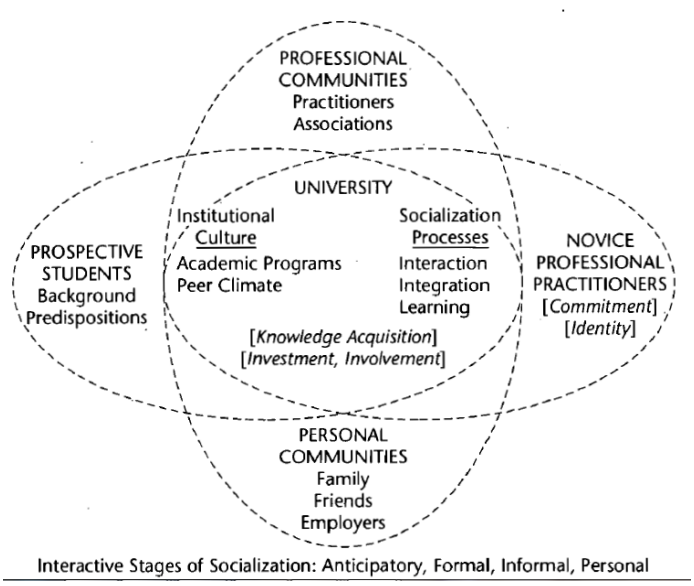

Figure 2. Weidman, Twale, and Stein Graduate Socialization Framework.

CHAPTER III

METHODOLOGY

This chapter presents the study's research questions, research design, data collection procedures, data manipulation, and data analyses for the study. The purpose of this study was to examine faculty beliefs about developmental education as they have implications for the provision of developmental education in the form of remediation. This study was guided by the following research questions and corresponding hypotheses.

Research Questions and Hypotheses

Research Question 1: Are there significant mean differences in Faculty Beliefs Scale scores across institutional types??

Hypothesis 1a. Community colleges have institutional missions that embrace educational access and inclusion. As such, faculty teaching at community colleges will demonstrate positive beliefs about developmental education.

Hypothesis 1b. Historically Black Colleges and Universities (HBCUs) have institutional missions that embrace educational access and inclusion. As such, faculty teaching at HBCUs will demonstrate positive beliefs about developmental education.

Hypothesis 1c. Research universities have institutional missions that embrace selective admissions and the primacy of research. As such, faculty teaching

research universities will demonstrate negative beliefs about developmental education.

Research Question 2: Are there significant mean differences in Faculty Beliefs Scale scores across academic rank?

Hypothesis 2a. Part-time, non-tenured faculty have a high probability of teaching developmental education courses. As such, part-time, non-tenured faculty will demonstrate positive beliefs about developmental education.

Hypothesis 2b. Full-time, non-tenured faculty have a medium probability of teaching developmental education courses. As such, full-time, non-tenured faculty will demonstrate less positive beliefs about developmental education than part-time, non-tenured faculty, but more positive beliefs than full-time faculty.

Hypothesis 2c. Full-time, tenured faculty have the lowest probability of teaching developmental education courses. As such, full-time, tenured faculty will demonstrate the least positive beliefs about developmental education.

Research Question 3: Are there significant mean differences in Faculty Beliefs Scale scores across academic discipline?

Hypothesis 3a. Faculty teaching courses related to the English and mathematics disciplines have a high probability of teaching developmental education courses. As such, faculty teaching courses related to the English and mathematics disciplines will demonstrate positive beliefs about developmental education.

Hypothesis 3b. Faculty who are not teaching courses related to the English and mathematics disciplines have a low probability of teaching developmental

education courses. As such, faculty not teaching courses related to the English and mathematics disciplines will demonstrate negative beliefs about developmental education.

Research Question 4: Are there significant mean differences in Faculty Beliefs Scale scores across levels of faculty experience with developmental education??

Hypothesis 4a. Faculty beliefs about developmental education will become increasingly positive as the number of developmental education courses the faculty member has taught increases.

Hypothesis 4b. Faculty who have received training in developmental education will demonstrate more positive beliefs than faculty who have not received training in developmental education.

Hypothesis 4c. Of those faculty who have received training in developmental education, faculty who have participated in workshops or have taken coursework on how to teach developmental courses will demonstrate more positive beliefs about developmental education than faculty who have only read material about developmental education.

Hypothesis 4d. Faculty who have taken a developmental education course will demonstrate more positive beliefs about developmental education than faculty who have not taken a developmental education course.

Research Question 5: Are there significant mean differences in Faculty Beliefs Scale scores when examining the two-way interactions of the independent variables?

Hypothesis 5a. Faculty beliefs about developmental education will vary significantly when examining the interaction between institutional type and academic rank.

Hypothesis 5b. Faculty beliefs about developmental education will vary significantly when examining the interaction between institutional type and academic discipline.

Hypothesis 5c. Faculty beliefs about developmental education will vary significantly when examining the interaction between institutional type and level of experience with developmental education.

Hypothesis 5d. Faculty beliefs about developmental education will vary significantly when examining the interaction between academic rank and academic discipline.

Hypothesis 5e. Faculty beliefs about developmental education will vary significantly when examining the interaction between academic rank and level of experience with developmental education.

Hypothesis 5f. Faculty beliefs about developmental education will vary significantly when examining the interaction between academic discipline and level of experience with developmental education**.**

Research Question 6: How well does a regression analysis of institutional type, academic rank, academic discipline, and experience predict Faculty Beliefs Scale scores?

Hypothesis 6a. A significant amount of the variance in faculty beliefs as measured by survey score can be attributed to one or more of the independent variables.

Procedures and Data Collection

Selected Institutions

The colleges and universities included in this study were selected based on physical location and institutional type. All selected institutions were chosen from a list of regionally accredited public colleges and universities in a state in the Southeastern United States. One state was used in the study to minimize heterogeneity of educational laws and regulations. Because the study examines participants at research universities, HBCUs, and community colleges, it was essential that all institutions included in the study be mutually exclusive in terms of institutional type. Therefore, all HBCUs cross-classified as a research institution or a community college were eliminated from selection.

Participants and Solicitation

Participants for this study consisted of faculty members of various academic ranks and disciplines at the selected institutions. The participants were recruited from a current public directory of course instructors at the identified institutions during the 2013-2014 academic year. The faculty were contacted for participation via direct e-mail. The initial recruitment e-mail introduced the researcher, briefly outlined the objectives of to the study and provided a link to the online Faculty Beliefs Scale. Two follow-up e-mails were sent to participants: one sent a week after the initial contact and a second two weeks after the initial contact.

The first page of the Faculty Beliefs Scale presented an informed consent document approved by the Institutional Review Board at each institution represented in the study. Study participants indicated their consent by selecting the "yes" option. Individuals who did not consent to the terms of the study selected "no" and were exited from the survey. At the end of the survey, participants were prompted to register separately for a drawing to win one of four Visa Gift Cards valued at $25.00 each.

Sample and Population

The Faculty Beliefs Scale was distributed to 2,434 faculty members at the selected institutions. Of the initial pool, there were 769 faculty responses for an overall response rate of 31.6%. Seventy-nine survey responses were excluded from the study due to incomplete data, leaving a total sample of 690 faculty survey responses (28.35% response rate). Seventy-eight (11.3%) of the study participants were faculty from community colleges, 124 (18%) participants were faculty from HBCUs and 488 (70.7%) participants were faculty from research institutions. Faculty participation from research institutions in the sample is greater than that of community colleges and HBCUs because the population of faculty at research institutions is much greater than the other intuitional types. Table 1 represents the study participants in reference to the instructional population of instructors as reported by the National Center for Education Statistics.

The minimum sample size for this study was calculated from G*Power 3 using an a priori power analysis (Faul, Erdfelder, Lang, & Buchner, 2009). The designated significance level, alpha, was set at .05, the desired statistical power was set to .80 and the anticipated effect size was set at .20. With the aforementioned specifications,

G*Power reported a minimum sample size of 246 for this study. The actual study sample of 690 participants ultimately met the minimum requirements as specified by G*Power.

Data on participants' faculty status was also solicited in the survey. A total of 198 (28.7%) participants indicated that they were part-time faculty and 488 (67.5%) of the participants indicated that they held full-time faculty status. Another 26 (3.8%) participants responded with an undefined faculty status. Sample comparisons to population data on faculty status are listed in Table 1.

Table 1

Sample and Populations Statistics for Number of Faculty and Faculty Status

Institution Type	# Faculty	Sample Yield	FT	Sample Yield	PT	Sample Yield	Undefined
CC Sample	78	7.4%	6	2.3%	63	8.0%	9
CC Population	1053		265		788		NA
HBCU Sample	124	12.2%	97	12.9%	24	20.3%	3
HBCU Population	1018		752		118		NA
RI Sample	488	15.4%	363	15.2%	111	7.9%	14
RI Population	3159		2392		1404		NA

Source for Population Data: National Center for Education Statistics: College Navigator Fall 2012 Data

Instrumentation

Data for this study were collected using participant responses to the Faculty Beliefs Scale. The Faculty Beliefs Scale is composed of two parts and was developed around the construct beliefs about developmental education. The first part of the Faculty Beliefs Scale asked study participants demographic and objective questions to solicit

information concerning their institution, academic disciple, academic rank, and experience with developmental education. The second part of the Faculty Beliefs Scale is a 13-item scale adapted from the Inventory of Faculty Attitudes (Spickelmier, 1972). The items solicited faculty responses to statements about developmental education in terms of their personal agreement or disagreement using a 5-point Likert Scale (5 = *Strongly Agree*, 4 = *Agree*, 3 = *Neither Agree nor Disagree*, 2 = *Disagree*, 1 = *Strongly Disagree*). High scores on the Faculty Beliefs Scale signify negative beliefs about developmental education courses and low scores signify positive beliefs about developmental education. The Faculty Beliefs Scale in the current study produced a Cronbach's alpha of .90, indicating the scale has a high level of internal validity. Overall, the results of the Faculty Beliefs Scale suggest that the scale has strong reliability and it measures the intended construct of positive faculty beliefs about developmental education.

Distribution of Scores and Normative Interpretations

Central tendency. To assess the central tendency of the item responses, the mean was evaluated for each item and scale. The results of this analysis are reported in Appendix C. The mean represents the average response for each item. The mean values ranged from a low of 2.05 for Q3 and a high of 3.39 for Q8. The mean for the overall scale was 34.11 with a standard deviation of 9.27.

Response range and variance. The response range and variance are a measure of item quality because they gauge the item's ability to capture differences among the respondents. A wide range and variance are desirable as they will easily differentiate

item responses. An overall analysis indicates that the range and variance for each item are acceptable, but they ultimately limit the survey's ability to differentiate between participant responses. All thirteen items on the Faculty Belief Scale had a full range of responses in this study from 1-5. The standard deviation for each item ranged from a low of .91for Q3 and a high of 1.25 for Q8. The results of item range and standard deviation are reported in Appendix C.

Item Statistical Quality

Item Discrimination. In assessing the statistical quality of each item, it is important to know how well the item can distinguish between high and low levels of the construct. The corrected item-total correlation was therefore calculated as a measure of discriminating power of each item. The results of this analysis are listed in Appendix C. The results show that the items on the survey had high levels of discrimination – 11 items had inter-item correlations above .70 and the remaining 2 items had inter-item correlations above .55. None of the items on the survey had negative item-total correlations suggesting that reverse coding is not necessary. Applied to the Faculty Beliefs Survey, this item statistical quality analysis shows that each item on the survey can successfully distinguish between positive and negative beliefs about developmental education.

Scale Reliability

Cronbach's Alpha. The internal reliability of the Faculty Beliefs Scale during the pilot study was high as demonstrated by the Cronbach's Alpha of .95. In the current study, the Faculty Beliefs Scale study yielded a Cronbach's Alpha of .90. The high

Cronbach's alpha indicates that the scale has high inter-item correlations. The reliability of the instrument cannot be significantly improved by removing any given item as indicated by the Cronbach's Alpha if Item Deleted in Table 2.

Table 2

Descriptive Statistics for the Items and Total Score of the Faculty Beliefs Scale

Item	*N*	Min	Max	*M*	*SD*	Variance	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	690	1	5	3.15	1.17	1.37	0.60	0.89
2	690	1	5	2.58	1.12	1.26	0.63	0.89
3	688	1	5	2.05	0.91	0.83	0.56	0.90
4	690	1	5	2.99	1.09	1.19	0.52	0.90
5	688	1	5	2.25	0.92	0.85	0.49	0.90
6	689	1	5	2.40	1.00	0.99	0.62	0.89
7	688	1	5	2.67	1.00	1.01	0.59	0.89
8	690	1	5	3.39	1.25	1.56	0.59	0.89
9	689	1	5	2.33	1.01	1.02	0.60	0.89
10	689	1	5	3.00	1.17	1.37	0.54	0.90
11	689	1	5	2.54	0.99	0.99	0.70	0.89
12	690	1	5	2.37	1.04	1.09	0.77	0.89
13	688	1	5	2.45	1.02	1.04	0.70	0.89
Total	690	1	5	2.63	0.71	0.51		

Data Manipulation and Analysis

Data Manipulation

Data were recoded to create the appropriate categories for the analyses. Each institution selected for the study was appropriately assigned as a community college, HBCU, or research institution based on their Carnegie classification. To define categories for academic rank, teaching/graduate assistant and instructor/adjust faculty member/lecturer were recoded as "part time, no tenure," assistant professor was recoded as "full time, no tenure," and associate professor and full professor were recoded as "full time, tenure." The academic discipline variable was coded to group faculty who taught English and math into one category and faulty who taught all other subjects into another category.

Level of experience with developmental education required coding in four areas. First, level of experience teaching developmental courses was recoded to test hypothesis 4a. Faculty who have never taught a developmental education course were coded as "none." Faculty who have taught one to three reiterations of developmental education classes were coded as "low." Faculty who have taught four to six classes were coded as "medium." Faculty who taught seven or more developmental education courses were coded as "high." Next, to analyze hypothesis 4b and 4c, responses to training level were recoded as "none" for faculty who received no training around developmental education, "read" for faculty who responded as having only read material about developmental education and "WC" for faculty who responded that they had participated in a workshop and/or class on developmental education. The third recoding involved responses for the

item asking about experience taking developmental education courses, which were coded as "yes" or "no." Finally, overall level of experience was calculated for research questions five and six by converting faculty responses to training, teaching, and taking developmental education courses. Table 3 outlines how each element of the training was converted to scores. Total scores for experience were then converted into the following categories: no experience "none," 1-3 experience points was categorized as "low," 4-6 points was categorized as "medium," while seven or more points was labeled "high" experience.

Table 3

Experience Level Point Conversion

Type	Coded Value				
Taught	None = 0	Low (1-3 Classes) = 1	Med (4-6 Classes) = 2	High (7+ Classes) = 3	
Training	None = 0	Reading = 1	Workshop = 2	Class = 2	Other = 1
Taken	Not Taken = 0	Taken = 2			
EXPLVL	None = 0	Low = 1-3 pts.	Med = 4-6 pts.	High = 7+ pts.	

Data Analysis

Data collected from the Faculty Beliefs Scale was evaluated using analysis of variance (ANOVA) and a linear regression. A one-way ANOVA was used for research questions one through four to determine if there are significant mean differences in faculty beliefs about developmental education across the independent variables (1) institutional type, (2) faculty academic rank, (3) academic discipline, (4) and level of

experience with developmental education. Similarly, a four-way ANOVA was run to analyze the two-way interactions of the independent variables. Finally, a linear regression was used to assess the predictive value of the four independent variables in in determining faculty beliefs about developmental education in the form of remediation. Table 4 outlines the statistical analysis used for each research question and corresponding data.

Table 4

Summary of Statistical Analyses

	Data				
Research Questions	Institution	Rank	Discipline	Experience	**Analyses**
RQ1 Are there significant mean differences in Faculty Beliefs Scale scores across institutional types?	X				One way ANOVA to compare group survey scores means- Independent variable is institution type and survey score is the dependent variable
RQ2 Are there significant mean differences in Faculty Beliefs Scale scores across academic rank?		X			One way ANOVA to compare group survey scores means- Independent variable is institution type and survey score is the dependent variable
RQ3 Are there significant mean differences in Faculty Beliefs Scale scores across academic discipline?			X		One way ANOVA to compare group survey scores means. Independent variable is academic rank and survey score is the dependent variable

Table 4

(Cont.)

Research Questions	Data				Analyses
	Institution	Rank	Discipline	Experience	
RQ4 Are there significant mean differences in Faculty Beliefs Scale scores across levels of faculty experience with developmental education?				X	One way ANOVA to compare group survey scores means-Independent variables are teaching experience, training experience and experience taking developmental education courses and survey score is the dependent variable
RQ5 Are there significant mean differences in Faculty Beliefs Scale scores when examining the two-way interactions of the independent variables?	X	X	X	X	Four-way ANOVA to compare group survey scores means Institution type, academic rank, academic discipline, and overall experience level are the independent variables and Survey score is the dependent variable
RQ6 How well does a regression analysis of institutional type, academic rank, academic discipline, and experience predict Faculty Beliefs Scale scores??	X	X	X	X	Regression-Institution type, academic rank, academic discipline, and level of experience are the independent variables and survey score is the dependent variable

CHAPTER IV

RESULTS

The purpose of this study was to examine faculty beliefs about developmental education in the form of remediation. The study explored the premise that faculty opinions about remediation are a product of faculty members' rank, academic discipline, experience with developmental education courses, and the type of institution where they teach. The study therefore analyzed six research questions and 19 corresponding hypotheses around faculty beliefs and their relationship to institution type, faculty rank, academic disciple, and level of experience with remediation. The results of the statistical analyses of the research questions and hypotheses are described below.

Institutional Type

Research Question 1: Are there significant mean differences in Faculty Beliefs Scale scores across institutional types?

Hypothesis 1a. Community colleges have institutional missions that embrace educational access and inclusion. As such, faculty teaching at community colleges will demonstrate positive beliefs about developmental education.

Hypothesis 1b. Historically Black Colleges and Universities (HBCUs) have institutional missions that embrace educational access and inclusion. As such, faculty teaching at HBCUs will demonstrate positive beliefs about developmental education.

Hypothesis 1c. Research universities have institutional missions that embrace selective admissions and the primacy of research. As such, faculty teaching research universities will demonstrate negative beliefs about developmental education.

The relationship between faculty beliefs and institutional type was evaluated using a one-way analysis of variance (ANOVA). The ANOVA revealed that there was a significant mean (p = .00) difference in faculty beliefs as measured by the score on the Faculty Beliefs Scale across institutional type. This suggests that, on average, faculty beliefs about developmental education are influenced by the mission of the institution in which they are employed. A Tukey's HSD post-hoc test revealed that faculty at community colleges had significantly lower mean scores when compared to mean scores of faculty at HBCUs and research institutions (p = .05, p = .00). Faculty beliefs at HBCUs were not significantly different from faculty at research institutions (p = .32). Thus there is statistical evidence to support Hypotheses 1a and 1c; on average, community college faculty hold positive beliefs about developmental education ($\bar{x}$ = 30.42) and faculty at research institutions hold negative beliefs about developmental education ($\bar{x}$ = 34.85). There is not enough statistical evidence, however to substantiate Hypothesis 1b given that the mean score for HBCU faculty ($\bar{x}$ = 33.52) did not differ significantly from that of faculty teaching at research institutions. It must be noted that the high power and low effect size ($1-\beta$= .96; η^2 = .02) of the ANOVA suggests that the statistical test was overly sensitive and the mean differences may simply be the result of the large sample size.

Table 5

Descriptive Statistics for Faculty Beliefs Scale Across Institutional Type

Descriptive Statistics

Dependent Variable: FBSSCORE

INST	*M*	*SD*	*N*
CC	30.42	7.27	78
HBCU	33.52	11.08	124
RI	34.85	8.91	488
Total	34.11	9.27	690

Table 6

ANOVA Statistics for Institutional Type

Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
INST	1371.54	2.00	685.77	8.15	0.00	0.02	0.96
Error	57824.08	687	84.17				
Corrected Total	59195.63	689					

Table 7

Tukey HSD Post-Hoc Test for Institutional Type

	(I) INST	(J) INST	Mean Difference (I-J)	Std. Error	Sig.
Tukey HSD	CC	HBCU	-3.09	1.33	.05
		RI	-4.43*	1.12	0.00
	HBCU	CC	3.09	1.33	0.05
		RI	-1.33	0.92	0.32
	RI	CC	4.43*	1.12	0.00
		HBCU	1.33	0.92	0.32

Academic Rank

Research Question 2: Are there significant mean differences in Faculty Beliefs Scale scores across academic rank?

Hypothesis 2a. Part-time, non-tenured faculty have a high probability of teaching developmental education courses. As such, part-time, non-tenured faculty will demonstrate positive beliefs about developmental education.

Hypothesis 2b. Full-time, non-tenured faculty have a medium probability of teaching developmental education courses. As such, full-time, non-tenured faculty will demonstrate less positive beliefs about developmental education than part-time, non-tenured faculty, but more positive beliefs than full-time faculty.

Hypothesis 2c. Full-time, tenured faculty have the lowest probability of teaching developmental education courses. As such, full-time, tenured faculty will demonstrate the least positive beliefs about developmental education.

A one-way analysis of variance (ANOVA) was used to examine the relationship between faculty beliefs about developmental education courses and academic rank. The result of the ANOVA affirmed a significant mean difference in faculty beliefs (p = .00) between academic ranks. A Tukey HSD post-hoc test indicated that full-time tenured faculty ($\bar{x}$ = 35.44) had a significantly higher mean score (p = .00) on Faculty Belief Scale than part-time non-tenured faculty ($\bar{x}$ = 32.03). This finding supports Hypotheses 2a and 2c. The post-hoc test does not support Hypothesis 2b because the mean Faculty Beliefs Scale score for full-time, non-tenured faculty ($\bar{x}$ = 33.68) was not significantly different from the other faculty ranks (p =.30 and p = .43). As in the previous analysis,

the high power and low effect size ($1-\beta = .96$; $\eta^2 = .03$) of the faculty rank ANOVA suggests that the statistical test was too sensitive and the mean differences may simply be the result of the large sample size.

Table 8

Descriptive Statistics for Academic Rank

Descriptive Statistics

Dependent Variable: FBSSCORE

RANK	*M*	*SD*	*N*
FTT	35.44	9.30	357
FTNT	33.68	9.69	109
PTNT	32.03	8.66	198
UNDF	33.50	8.86	26
Total	34.11	9.27	690

Table 9

ANOVA Statistics for Academic Rank

ANOVA

Dependent Variable: FBSSCORE

Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
Between Groups	1524.42	3	508.14	6.04	0	0.03	.96
Within Groups	57671.21	686	84.07				
Total	59195.63	689					

Table 10

Tukey HSD Post-Hoc Test for Academic Rank

	(I) RANK	(J) RANK	Mean Difference (I-J)	Std. Error	Sig.
Tukey HSD	FTT	FTNT	1.76	1.00	0.30
		PTNT	3.42	0.81	0.00
		UNDF	1.94	1.86	0.72
	FTNT	FTT	-1.76	1.00	0.30
		PTNT	1.65	1.09	0.43
		UNDF	.18	2.00	1.00
	PTNT	FTNT	-1.65	1.09	0.43
		FTT	-3.42	0.81	0.00
		UNDF	-1.47	1.91	0.87
	UNDF	FTNT	-.18	2.00	1.00
		FTT	-1.94	1.86	0.72
		PTNT	1.47	1.91	0.87

Academic Discipline

Research Question 3: Are there significant mean differences in Faculty Beliefs Scale scores across academic discipline?

Hypothesis 3a. Faculty teaching courses related to the English and mathematics disciplines have a high probability of teaching developmental education courses. As such, Faculty teaching courses related to the English and mathematics disciplines will demonstrate positive beliefs about developmental education.

Hypothesis 3b. Faculty who are not teaching courses related to the English and mathematics disciplines have a low probability of teaching developmental education courses. As such, faculty not teaching courses related to the English

and mathematics disciplines will demonstrate negative beliefs about developmental education.

To evaluate the impact of academic discipline on faculty members' beliefs about developmental education courses, a one way ANOVA was run. This ANOVA compared mean Faculty Belief Scale scores for English and math faculty against the mean scores of faculty who teach other subjects. The analysis did not support Hypothesis 3a or 3b because there was no significant mean difference (p = .08) between the scores of faculty teaching English and math and the Faculty Beliefs Scale scores of faculty teaching in other academic disciplines. Furthermore, the high power and low effect size indicate that the mean differences between the two groups are negligible.

Table 11

Descriptive Statistics for Academic Discipline

Descriptive Statistics

Dependent Variable: FBSSCORE

DISP	*M*	*SD*	*N*
EM	32.43	9.49	82
Other	34.34	9.22	608
Total	34.11	9.27	690

Table 12

ANOVA Statistics for Academic Discipline

ANOVA							
Dependent Variable: FBSSCORE							
Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
Between Groups	263.69	1	263.69	3.08	0.08	0.00	0.42
Within Groups	58931.94	688	85.66				
Total	59195.63	689					

Experience Level

Research Question 4: Do faculty beliefs about developmental education vary significantly by level of experience with developmental education?

Hypothesis 4a. Faculty beliefs about developmental education will become increasingly positive as the number of developmental education courses the faculty member has taught increases.

Hypothesis 4b. Faculty who have received training in developmental education will demonstrate more positive beliefs than faculty who have not received training in developmental education.

Hypothesis 4c. Of those faculty who have received training in developmental education, faculty who have participated in workshops or have taken coursework on how to teach developmental courses will demonstrate more positive beliefs

about developmental education than faculty who have only read material about developmental education.

Hypothesis 4d. Faculty who have taken a developmental education course will demonstrate more positive beliefs about developmental education than faculty who have not taken a developmental education course.

Teaching

Research question four was analyzed using three separate one-way ANOVA tests. To test Hypothesis 4a, faculty were grouped together based their level of experience teaching developmental education courses. Faculty who had never taught developmental education courses were coded as "none," faculty who had taught one to three classes were coded as "low," faculty who had taught four to six classes were coded of "medium," and faculty who taught seven or more developmental education courses were coded as "high." The results of the one-way ANOVA confirmed a significant mean difference between Faculty Beliefs Scale scores of the four groups (p = .00), however the high power ($1\text{-}\beta$ = .97) and low effect size (η^2= .03) suggest a hypersensitive ANOVA analysis. A Tukey's post-hoc test showed that faculty with high levels of developmental education teaching experience had mean scores that were significantly lower than faculty with low (p = .00) or no (p = .00) experience teaching developmental courses. There were no other significant mean differences between levels of teaching experience. The post hoc test imply that faculty with high levels of experience teaching have, on average, affirmative beliefs ($\bar{x}$ = 26.93) about developmental education courses whereas faculty

with low ($\bar{x}$ = 33.94) or no ($\bar{x}$ = 34.58) experience held more negative views about developmental education courses.

Table 13

Descriptive Statistics for Teaching Experience

Descriptive Statistics

Dependent Variable: FBSSCORE

TEACH	*M*	*SD*	*N*
High	26.93	10.74	28
Medium	32.14	11.09	21
Low	33.94	9.67	89
None	34.58	8.91	552
Total	34.11	9.27	690

Table 14

ANOVA Statistics for Teaching Experience

ANOVA

Dependent Variable: FBSSCORE

Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
Between Groups	1647.68	3	549.23	6.55	0.00	0.03	0.97
Within Groups	57547.95	686	83.89				
Total	59195.63	689					

Table 15

Tukey HSD Post-Hoc Test for Teaching Experience

	(I) TEACH	(J) TEACH	Mean Difference (I-J)	Std. Error	Sig.
Tukey HSD	High	Low	-7.02*	1.99	0.00
		Med	-5.21	2.64	0.20
		None	-7.65*	1.77	0.00
	Low	High	7.02*	1.99	0.00
		Med	1.80	2.22	0.85
		None	-0.63	1.05	0.93
	Med	High	5.21	2.64	0.20
		Low	-1.80	2.22	0.85
		None	-7.02*	1.99	0.00
	None	High	-5.21	2.64	0.20
		Low	-7.65*	1.77	0.00
		Med	7.02*	1.99	0.00

Training

Hypotheses 4b and 4c were tested using a single one-way ANOVA. The faculty were grouped into three categories: 1) faculty who had no training related to teaching developmental education courses, 2) faculty who have only read materials related to teaching developmental education courses, and 3) faculty who had attended a workshop or taken a class related to teaching developmental education courses. The ANOVA indicated a significant difference in the mean Faculty Beliefs Scale scores of the three levels of training (p = .01). A Tukey's post-hoc test showed the average Faculty Beliefs

Scale scores for faculty who had read about developmental education did not vary significantly from the scores of faculty who had no training (p = .11) and those who had taken a class or attended a workshop on teaching developmental education courses (p = .98). The post-hoc test did, however, reveal significance mean score differences between faculty who had been in a workshop or class about developmental courses and faculty who had no training (p = .02). This finding confirms that faculty who had participated in a workshop or coursework generally held more favorable beliefs about developmental education courses ($\bar{x}$ = 31.91) than those without training ($\bar{x}$ = 34.73). As in the previous analysis, the high power and low effect size ($1-\beta$= .96; η^2 = .02) of the faculty training ANOVA suggests that the statistical test was overly sensitive and large sample size is the source of the mean differences.

Table 16

Descriptive Statistics for Training

Descriptive Statistics

Dependent Variable: FBSSCORE

TRAIN	*M*	*SD*	*N*
NONE	34.73	8.835	533
READ	32.17	9.612	59
WC	31.91	10.847	98
Total	34.11	9.269	690

Table 17

ANOVA Statistics for Training

ANOVA							
Dependent Variable: FBSSCORE							
Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
Between Groups	902.06	2	451.03	5.32	0.01	0.02	0.96
Within Groups	58293.57	687	84.85				
Total	59195.63	689					

Table 18

Tukey HSD Post-Hoc Test for Training

	(I) TRAIN	(J) TRAIN	Mean Difference (I-J)	Std. Error	Sig.
Tukey HSD	NONE	READ	2.56	1.26	0.11
		WC	2.82	1.01	0.02
	READ	NONE	-2.56	1.26	0.11
		WC	0.26	1.52	0.98
	WC	NONE	-2.82	1.01	0.02
		READ	-0.26	1.52	0.98

Courses Taken

Another one-way ANOVA was run to test Hypothesis 4d. This ANOVA produced statistically significant results ($p = .00$, $\eta^2 = .02$). Faculty who had taken a developmental

education course at a postsecondary institution had mean Faculty Beliefs Scale scores that were statistically more positive ($\bar{x}$ = 29.43) than the scores of the faculty who did not take developmental education courses ($\bar{x}$ = 34.43). This finding affirms Hypothesis 4d, but it is necessary to acknowledge the over sensitive ANOVA analysis as reflected by the high power and low effect size ($1-\beta$= .94; η^2 = .02). No post-hoc test was necessary as there were only two groups in this analysis.

Table 19

Descriptive Statistics for Taking Developmental Courses

Descriptive Statistics

Dependent Variable: FBSSCORE

TAKEN	*M*	*SD*	*N*
N	34.43	9.18	646
Y	29.43	9.41	44
Total	34.11	9.27	690

Table 20

ANOVA Statistics for Taking Developmental Courses

ANOVA

Dependent Variable: FBSSCORE

Source	Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Observed Power
Between Groups	1028.61	1	1028.61	12.17	0.00	0.02	0.94
Within Groups	58167.02	688	84.55				
Total	59195.63	689					

Independent Variable Interactions

Research Question 5: Are there significant mean differences in Faculty Beliefs Scale scores when examining the two-way interactions of the independent variables?

Hypothesis 5a. Faculty beliefs about developmental education will vary significantly when examining the interaction between institutional type and academic rank.

Hypothesis 5b. Faculty beliefs about developmental education will vary significantly when examining the interaction between institutional type and academic discipline.

Hypothesis 5c. Faculty beliefs about developmental education will vary significantly when examining the interaction between institutional type and level of experience with developmental education.

Hypothesis 5d. Faculty beliefs about developmental education will vary significantly when examining the interaction between academic rank and academic discipline.

Hypothesis 5e. Faculty beliefs about developmental education will vary significantly when examining the interaction between academic rank and level of experience with developmental education.

Hypothesis 5f. Faculty beliefs about developmental education will vary significantly when examining the interaction between academic discipline and level of experience with developmental education.

A four-way ANOVA was run to determine if there are significant mean differences in Faculty Beliefs Scale scores when examining the two-way interactions of the independent variables. None of the two-way interactions were significant, suggesting that faculty beliefs do not vary significantly across the two-way interactions of the independent variables institution type, academic rank, academic discipline, and level of experience. Thus, there is no evidence to support research question five or any of its corresponding hypotheses.

Table 21

Descriptive Statistics for FBS Score and Independent Variables

Descriptive Statistics

	M	*SD*	*N*
FBSSCORE	34.11	9.269	690
INST#	2.59	.684	690
RANK#	2.16	.966	690
DISP#	1.88	.324	690
EXPLVL#	.53	.831	690

Table 22

ANOVA Statistics for Two-Way Independent Variable Interactions

ANOVA					
Dependent Variable: FBSSCORE					
Source	Type III Sum of Squares	*df*	Mean Square	F	Sig.
INST * RANK	796.31	6	132.72	1.67	0.13
INST * DISP	226.81	2	113.41	1.43	0.24
INST * EXPLVL	710.93	6	118.49	1.49	0.18

Table 22

(Cont.)

ANOVA					
Dependent Variable: FBSSCORE					
Source	Type III Sum of Squares	*df*	Mean Square	F	Sig.
RANK * DISP	305.61	3	101.87	1.28	0.28
RANK * EXPLVL	922.91	8	115.36	1.45	0.17
DISP * EXPLVL	558.72	3	186.24	2.34	0.07
Error	50369.93	634	79.45		

Note: Only two way interactions show in table

Prediction Model

Research Question 6: How well do institution type, academic rank, academic discipline, and training status predict survey scores?

Hypothesis 6a. A significant amount of the variance in faculty beliefs as measured by survey score can be attributed to one or more of the independent variables.

A simple linear regression analysis was conducted to assess the value of the independent variables in predicting the Faculty Beliefs Scale score. The results of the regression model provide evidence to support Hypothesis 6a ($p = .00$, $R^2 = .06$). The regression produced significant results for institution type ($p = .03$), academic rank ($p = .01$), and experience level ($p = .00$), but academic discipline was not significant ($p = .06$). From this, it can be concluded that institution type, academic rank, and experience level account for 6% of the variance in Faculty Beliefs Scale score. The beta coefficients indicated the increases in institutional type ($\beta = 1.19$) and academic rank ($\beta = .94$)

resulted in increasing negative beliefs about developmental education courses, and increases in experience level (β = -1.52) lead to increasingly positive beliefs.

Table 23

Descriptive Statistics for FBS Scores and Independent Variables

Descriptive Statistics

	M	*SD*	*N*
FBSSCORE	34.11	9.269	690
INST	2.59	.684	690
RANK	2.16	.966	690
DISP	1.88	.324	690
EXPLVL	.53	.831	690

Table 24

Linear Regression Statistics for FBS Scores and Independent Variables

Model Summary

					Change Statistics		
Model	*R*	R^2	Adjusted R^2	Std. Error of the Estimate	R^2 Change	*F* Change	*df1*
1	.236[a]	.056	.050	9.033	.056	10.105	4

Table 25

Linear Regression Coefficients

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	25.97	2.54		10.23	0.00
	INST	1.19	0.54	0.09	2.19	0.03
	RANK	0.94	0.38	0.10	2.46	0.01
	DISP	2.04	1.06	0.07	1.92	0.06
	EXPLVL	-1.52	0.43	-0.14	-3.56	0.00

Table 26

Linear Regression Inter-item Correlations

Correlations

		FBSSCORE	INST#	RANK#	DISP#	EXPLVL#
Pearson Correlation	FBSSCORE	1.000	.149	.149	.067	-.171
	INST#	.149	1.000	.346	-.028	-.211
	RANK#	.149	.346	1.000	-.029	-.168
	DISP#	.067	-.028	-.029	1.000	-.007
	EXPLVL#	-.171	-.211	-.168	-.007	1.000
Sig. (1-tailed)	FBSSCORE	.	.000	.000	.040	.000
	INST#	.000	.	.000	.231	.000
	RANK#	.000	.000	.	.222	.000
	DISP#	.040	.231	.222	.	.429
	EXPLVL#	.000	.000	.000	.429	.

Summary

This chapter has reviewed the results of statistical analyses conducted to assess the study's six research questions and 19 corresponding hypotheses. First, a one-way ANOVA was run to determine if faculty beliefs varied across institutional type. The results confirmed a significant mean difference in faculty beliefs as measured by the Faculty Beliefs Scale across institutional type. The data supports the hypothesis that faculty at community colleges will generally demonstrate positive beliefs about developmental education courses and faculty at research institutions generally demonstrate negative beliefs, but there was no statistical evidence to substantiate the beliefs that faculty at HBCUs held positive beliefs about the practice.

Next, a one-way ANOVA was run to test hypothesis two and determine if faculty beliefs about developmental education vary significantly by academic rank. The analysis revealed a positive mean Faculty Beliefs Scale score for part-time, non-tenured faculty and a negative mean score for full-time tenured faculty. There was no evidence to support significant mean score differences for full-time non-tenured faculty.

A third one-way ANOVA was executed to determine if faculty beliefs about developmental education vary significantly across academic disciplines. The analysis revealed no significant mean differences in Faculty Beliefs Scale scores for faculty who teach English and mathematics and faculty who teach other subjects. The absence of significant results led to the rejection of hypotheses 3a and 3b.

The fourth set of ANOVAs tested the effect of experience with developmental education on faculty beliefs. A one-way ANOVA compared faculty beliefs based on the

level of experience teaching developmental education courses. The results affirmed a significant difference in beliefs of faculty who had taught seven or more remedial courses in comparison to faculty who had taught zero to three remedial courses in their instructional career. Another one-way ANOVA evaluated the effect of training on faculty beliefs. The ANOVA produced significant findings when comparing the mean Faculty Beliefs Scale score for faculty who completed a workshop or coursework on teaching developmental education courses and faculty who received no training in the field. A final one-way ANOVA for experience level tested the hypothesis that faculty who have taken a developmental education course will hold developmental education in higher esteem than faculty who have not taken a developmental education course. The results supported this hypothesis as there was a significant mean difference in scores between the two groups.

Research question five was analyzed using a four-way ANOVA. The focus of this analysis was the two way interactions of the independent variables. No significant mean differences in Faculty Belief Scale scores were uncovered in the four-way ANOVA, leading to a rejection of Hypotheses 5a-5f.

Finally, a simple regression was run to measure the predictive value of the independent variables. The regression indicated that institutional type, academic rank, and experience level accounted for 6% of the variance in the mean Faculty Beliefs Scale score. Academic discipline did not have a have a significant effect on the mean score. Hypothesis six was therefore supported showing that restrictive institutional missions and

higher academic rank led to increasing negative beliefs about developmental education courses and extensive training led to increasingly positive beliefs about the courses.

Although most of the statistical tests in this study supported the null hypotheses, most showed questionably high power and low effect sizes. The large sample size may have resulted in the acceptance of the null hypothesis when they were statistically equivalent. This is an important consideration when attempting to draw conclusions from the study results.

CHAPTER V

DISCUSSION

The persistent gap between secondary school exit standards and college entrance requirements have left many high school graduates underprepared for introductory level college courses. Throughout the history of American post-secondary education, remedial courses and other developmental education practices have helped bridge this gap by providing avenues for college students to gain the necessary proficiencies (Arendale, 2002b; Boylan, Bonham, & White, 1999; Brier, 1984; Casazza & Silverman 1996; Maxwell, 1997). The renewed national focus on college completion and public education expenditures has called the use of developmental education courses into question because the courses are seen as an unnecessary expense that lengthens the time it take to complete a college credential (Alliance for Excellent Education. (2011). Amidst the debate about developmental education, there has been little research done to examine faculty beliefs around the practice. Scholars have tracked the progression of developmental education (Arendale, 2002a, 2002b; Boylan, Bonham, & White, 1999; Brier, 1984; Casazza & Silverman 1996); a few studies have been conducted to explore the delivery of developmental education (Parker, Bustillos, & Behringer, 2010; Russell, 2008); even fewer studies have used experimental or quasi-experimental designs to test the effectiveness of developmental courses (Bettinger & Long, 2009; Boatman & Long, 2010; Calcagno & Long, 2008; Martorell & McFarin, 2007), but each of these have been

conducted with students or delivery methods as the unit of analysis. This study breaks from the trend by focusing on faculty and their beliefs about developmental education under the premise that faculty have marked influence on the curricular offerings at their respective institutions.

The purpose of this study was to examine faculty beliefs about developmental education at three distinct types of institutions in higher education as faculty beliefs may influence the provision of developmental education at institutions of higher education. The study was built on the framework of faculty belief formation that described faculty beliefs as a function of the historical mission and institutional context where the instructor is employed in conjunction with his or her early faculty training and socialization and experience with developmental education. This study was guided by the five research questions that operationalized the components of the framework and assessed their predictive values.

Overview

The statistical analyses used to evaluate the research questions in this study provided new insight into the formation of faculty beliefs about developmental education. The results indicate that institution type, academic rank, and level of experience with developmental education were significant predictors of faculty beliefs, whereas conclusions for the predictive value of academic discipline remain unclear. These results support the overarching framework used examine faculty beliefs, but they also leave room for further investigation in the area of faculty training and socialization. Below, each research question is discussed in light of the empirical results.

Institutional Type

Research Question 1: Are there significant mean differences in Faculty Beliefs Scale scores across institutional types?

Given the Bustillos model, it is reasonable to deduce that faculty beliefs about developmental education are influenced by the distinct historical missions and institutional contexts of community colleges, Historically Black Colleges and Universities (HBCUs), and research universities. The historical emphasis on educational access and inclusion at community colleges and HBCUs should be associated with positive beliefs about developmental education, whereas the primacy of research and selective admissions at research institutions should lead to less favorable beliefs. The results of the study confirm portions of the expected results for this research question, however there was not enough statistical evidence to support other suppositions. In this study, community college faculty beliefs were statistically more favorable towards developmental education than faculty at HBCUs and research institutions. HBCU faculty beliefs about developmental education were statistically indistinguishable from either those of faculty at research universities or those of faculty at community colleges.

The results about HBCU faculty beliefs suggest a shift away from the historical mission of HBCUs. State policy where the study was conducted may have influenced the results for HBCU faculty as all public baccalaureate granting institutions belong to the same state governing body. A single governing body means that HBCUs in this state are subject to the same mandates and procedures as Historically White Institutions (HWIs) and research universities in the state. HBCUs in this state are subsequently allowed little

flexibility in determining equitable admissions practices, developmental education course offerings, and intentional learning support mechanisms. The ultimate effect of combining the HBCUs into the same fold as other public four year colleges and universities is that HBCU operational practices are becoming more aligned with the values of HWIs and research universities that do not share the same commitment to access and inclusion as the historical mission of HBCUs. Public community colleges in the state spared the same fate as HBCUs because they are regulated by a separate governing body, which maintains the historical mission of the community college.

A second reason HBCUs may be experiencing a shift away from their historical mission relates to enrollment management and institutional marketing techniques. The passing of desegregation legislation in the mid-twentieth century led to significantly fewer Black college students enrolling at HBCUs (Aud et al., 2010; Provasnik & Shafer, 2004). For example, 83% of African American college students attended an HBCU in 1961 whereas under 9% of undergraduate African Americans were enrolled at an HBCU in 2012 (Hill, 1985; USDE, 2013). Some legislative bodies and political groups have even called into question the post-integration need for HBCUs (Cantey, Bland, Mack, & Joy-Davis, 2013; Gasman & Bowman, 2011; Harris, 2012). Many HBCUs are struggling to survive in the twenty-first century with fewer students and diminished financial resources. The result is that some HBCUs are now eliminating developmental programs and focusing on selective admissions policies to concentrate resources on students with the greatest likelihood of academic success (Arroyo, 2009; Gasman & Bowman, 2011).

Taken together, the external and internal pressures may have altered the mission of HBCUs. If a shift away from the historical mission of HBCUs could be empirically verified, it would provide support for this study's finding that, on average, HBCU faulty beliefs are not distinguishable from faculty beliefs at community colleges or research institution. There may be HBCU faculty whose beliefs reflect elements of the historical mission, thus aligning more with community college faculty beliefs. Likewise, other HBCU faculty beliefs may reflect elements of the contemporary mission which are more in line faculty beliefs at research institutions. Verifying the contemporary mission of HBCUs is outside of the scope of the current study, but it would provide fertile ground for future research.

In this study, faculty experience with developmental education was operationalized as a function of academic rank, academic discipline, experience teaching developmental education courses, experience taking developmental education courses, and receiving instruction in the discipline of developmental education. Three separate research questions were dedicated to fleshing out the impact of each element. The following section will discuss the implications of the research questions two through four as they relate to faculty experience.

Academic Rank

Research Question 2: Are there significant mean differences in Faculty Beliefs Scale scores across academic rank?

As predicted, part-time, non-tenured faculty was the academic rank that demonstrated most positive beliefs about developmental education in the study. Full-

time, tenured faculty had on average the most negative group Faculty Beliefs Scale Scores. Full-time, non-tenured faculty beliefs, on the other hand, were not statistically distinguishable from the other faculty ranks. A compelling reason for the lack of distinction is that full-time, non-tenured rank varies in meaning across institution type and this study did not ask a question that would reveal differences in role or status for full-time, non-tenured faculty. For example, a full-time faculty member at a HBCU or research institution may be a clinical professor who is not eligible for tenure or an assistant professor who has not yet attained tenure. Assistant professors will have fewer teaching responsibilities than clinical professors because a portion of their job is dedicated to the production of knowledge through research and clinical faculty are expected to provide more practical instruction and practical applications of knowledge than assistant professors. HBCUs and research institutions also tend to have a stronger commitment to retaining assistant professors, whereas clinical faculty are often regarded as adjunct instructors. As a result of their role and status, clinical faulty may have a higher chance of teaching developmental education courses than an assistant professor who is also a full-time non-tenured faculty member. The lack of distinction for full-time, non-tenured faculty also holds true at community colleges. Faculty at community colleges in the state where the study was conducted are not eligible for tenure. Therefore, faculty of varying seniority at community colleges were all classified as full-time, non-tenured faculty in this study. The ambiguity in the way full-time, non-tenured faculty were defined in this study as well as the wide range in the primary role, function, and seniority of full-time, non-tenured faculty across institutions may lead to beliefs are

statistically indistinguishable from the part-time, non-tenured and full-time, tenured faculty ranks. Future replications of this study should look more deeply into the classification of faculty rank at each institution and determine more precise definitions for each faculty rank and status.

Academic Discipline

Research Question 3: Are there significant mean differences in Faculty Beliefs Scale scores across academic discipline?

Historically, the majority of developmental education courses have been focused in the disciplines of English (reading and writing) and mathematics. The preponderance of English and math developmental courses suggests that faculty members teaching in these disciplines would have more experience teaching developmental courses and therefore more positive beliefs about developmental education. The data in the study, however, do not support this conclusion. There was no statistically significant difference in beliefs between faculty teaching English and math and faculty teaching other subjects.

A potential explanation for the statistical uniformity in beliefs across academic disciplines may be attributed to the low number of English and math instructors who participated in the study and that all disciplines other than English and math were categorized together for analysis. Only 82 of the 690 survey respondents (11.88%) indicated that they taught English or math courses. The low number of study participants in the targeted disciples restricts the variability in responses leaving little statistical power to reveal differences in beliefs. Additionally, more variability could be achieved by allowing faculty to indicate their academic discipline beyond the few categories

presented in the Faculty Beliefs Scale. Future replications of the study should oversample English and math faculty and add additional discipline categories to determine if beliefs are truly consistent with other academic disciplines or if measurable differences in beliefs about developmental education in this study were masked by sample size.

Experience Level

Research Question 4: Are there significant mean differences in Faculty Beliefs Scale scores across levels of faculty experience with developmental education?

Research questions two and three indirectly examine the connection between faculty beliefs and teaching developmental courses by looking at academic ranks and disciplines commonly associated with developmental education. Research question four examines the connection directly by looking at the number of developmental courses a given faculty member has taught and the amount of development education training a faculty member has received. The results regarding the number of courses taught were definitive showing that, on average, faculty who had taught seven or more developmental courses held the courses in significantly higher esteem than faculty who taught fewer than two developmental courses. Furthermore, 68% of faculty who taught seven or more developmental courses indicated that they specifically chose to teach developmental courses at some point in their career. This finding poses the question as to whether faculty choose to developmental education because they were committed the tenets of the practice or if they developed confirmatory beliefs about developmental education after engaging in the practice. While causation and causal direction cannot be confirmed using

the data in this study, a correlation between the number of developmental courses taught and affirming beliefs about the practice is well established.

A simple linear regression analysis revealed that institution type, academic rank, and experience level are significant predictors of faculty beliefs about developmental education as measured by the Faculty Beliefs Scale. Employment at HBCUs or research institutions, high academic rank, and low levels of experience with developmental education were negatively correlated with survey score. Conversely, the results confirmed that lower ranked faculty primarily employed at a community college who had received intensive training and have taught several developmental courses held the most positive beliefs about developmental education. Academic discipline was not found to be a significant predictor faculty beliefs in this study. The lack of significance in this category is, as previously mentioned, most likely a result of the low variability of academic disciplines in the study.

Despite the fact that three independent variables contribute to the prediction of scores, their combined predictive value accounts for less than 6% of the total variance in Faculty Belief Scales scores. This finding suggests that most of the variance in scores is a result of another factor or set of factors not explicitly addressed in the study. If the Bustillos model holds true for the formation faculty belief about developmental education, early training and socialization of faculty needs to been vetted more vigorously in the Faculty Beliefs Scale. Faculty training and socialization can be evaluated further in future studies by delving into the discipline of their academic

degrees, the highest degree earned by each instructor, and the type of degree granting institution.

Limitations of the Study

Although every attempt was made to complete a thorough and comprehensive investigation of faculty beliefs about developmental education, the study was subject to limitations. One limitation of the study involves the treatment of faculty socialization in the theoretical framework. The construction of the demographic portion of the Faculty Beliefs Scale was built upon the conjecture that the early training and socialization of post-secondary faculty would be relatively consistent. It was assumed that all post-secondary faculty would have similar training, hold graduate degrees, and they would have attended a research institution as part of their graduate training. A critical evaluation of participant responses and institutional context after the data were collected revealed that early training and socialization of the faculty in the study were in fact quite diverse.

When prompted about the nature of their training in developmental education, several faculty members responded that they had taken a college course on the topic or that developmental education was a theme in their field of practice. These comments imply that certain degree programs, such as education, psychology, and social work, are more likely than others to include developmental education as a part of their early training and socialization. Beyond degree content, errors were made regarding the supposition that all college and university faculty attended a research institution to acquire a graduate degree. A post-survey examination of the academic programs offered

at the institutions included in the study revealed that some post-secondary instructors are not required to hold graduate degrees. For example, an associate's degree is the minimal education requirement for instructors in technical programs such as Automotive Systems Technology or Cosmetology and instructors in developmental education departments are required to hold only a bachelor's degree. Even faculty with master's degrees may not have received similar socialization as doctoral level faculty because many master's degree programs are taught out of universities that do not have a research focus. Given their wide range of educational backgrounds, future replications of this study should ask participants to indicate all degrees earned, specify the academic disciplines of their respective degrees, and the degree-granting institution. Inclusion of these data will allow for a data-driven assessment of each participant's early training and socialization.

Another limitation of the study is related to information collected in the Faculty Beliefs Scale regarding faculty rank. The demographic portion of the scale asked participants to indicate their rank using terms commonly associated with post-secondary instructors (see Figure 3). After the survey data was collected and reviewed, it became apparent that the selected terminology may have altered responses for faculty rank. Community college faculty in the state in which the study was conducted cannot earn academic tenure. Subsequently, all community college faculty retain the title "instructor" regardless of their full- or part-time status or their seniority in the department. The ubiquitous use of the term "instructor" may have inadvertently caused full-time community college faculty participants to be classified as part-time, non-tenured faculty. If this study is replicated, the terminology used for faculty rank should be simplified to

simply state part-time, non-tenured; full-time, non-tenured; full-time tenured; and other to allow for consistent delineations of academic rank across institutions.

A final limitation of the study relates to restricted range of participants in the study. The survey was intentionally restricted to public schools in one state to minimize the effects of policy restrictions identified in the literature (Russell, 2008; Smith, 2012). This choice eliminated the thoughts and perspectives of faculty working at private institutions. The inclusion of faculty from private colleges and universities would have enhanced the findings in this study because they bring a unique institutional context to the research. Private institutions often have greater flexibility in terms of which courses they can offer in comparison to their public counterparts who must garner approval from state governing boards to make curricular changes. Likewise, private institutions have greater flexibility in determining admissions criteria. Public community colleges generally accept all applicants who completed a secondary credential and state colleges and universities are typically assigned ranges for admission standards. Private institutions, on the other hand, can adapt their admissions procedures to include any member of their target population and exclude any undesirable applicants (Cohen & Kisker, 2010). Admissions criteria speak volumes about an institution's commitment to providing developmental education; admissions are lenient if the school has a strong commitment to developing underprepared students while they are more restrictive at institutions that are not committed to developing underprepared students. Future replications of the study should include private community colleges, HBCUs, and

research universities to get a more holistic understanding of how institutional context influences faculty beliefs.

Significance of the Study

Even with its limitations, this study addresses critical gaps in the literature regarding faculty beliefs about developmental education. At the time of the study, no other published study had explicitly endeavored to assess faculty beliefs about developmental education at several institutional types. This study expanded upon the small body of existing knowledge to provide additional perspectives on the formation of faculty beliefs and its connection to the provision of developmental education courses.

Previous research on faculty beliefs about developmental education was restricted to community college faculty and focused primarily on faculty beliefs about developmental students. The framework for this study was adapted from a qualitative study on how community college faculty formed beliefs about developmental math students (Bustillos, 2007). Bustillos (2007) proposed the framework of faculty belief formation after conducting several interviews with study participants, but never tested the framework quantitatively. The current study adds value to the literature by providing quantitative support that institution type, academic rank, and level of experience with developmental education were significant predictors of faculty beliefs. However, it also shows that these factors explain very little of the variance in beliefs. Other factors that may influence faculty beliefs about developmental education await exploration.

The study from which the Faculty Beliefs Scale was developed also focused on community college faculty and their beliefs about educationally disadvantaged students

(Spicklemier, 1973). The Spicklemier (1973) study, however, only asks faculty to respond to questions about students. This study enhances Spicklemier's (1973) findings by including additional questions that asked faculty to express their beliefs about developmental education as a practice and its impact on their respective institutions.

Implications for Practice

The results of the study indicate that institution type, faculty rank, and level of experience all contribute to faculty beliefs about developmental education. These findings have profound implications for garnering faculty support for developmental education. Understanding the factors that affect faculty beliefs will enable developmental education advocates to implement targeted interventions to increase faculty support of the practice.

First, advocates can capitalize on knowing the largest groups of potential allies. Instead of appealing to all faculty for support of the practice, advocates can target faculty at community colleges, faculty of lower academic rank, and faculty who have experience with developmental education. These cohorts demonstrated the most positive beliefs about developmental education and will likely be willing to encourage the expansion of existing programs, report best practices for use by other practitioners, and promote developmental education to less supportive colleagues.

Next, advocates can focus interventions on faculty who are least likely to support the practice of developmental education. Full-time tenured faculty tend to have the most influence in academic departments, but the study shows that they are least likely to support developmental education than any other faculty rank. The cause of

developmental education can be furthered by drawing attention to performance in developmental education and its correlation to greater performance in classes often taught by higher ranking faculty. This study also showed that faculty at HBCUs and research institutions are less likely to support developmental education. Research about the history of developmental education at these institutional types should be presented in policy briefs, popular higher education print and social media, and research journals not commonly associated with developmental education to reaffirm that developmental education has traditionally been available at all institutions including the most selective colleges and universities (Arendale, 2002b; Casazza & Silverman 1996; Maxwell, 1997).

Finally, proponents of developmental education must make significant strides towards increasing the means through which faculty can gain experience with developmental education. This task can be accomplished by incorporating teaching about developmental education during graduate school and exposing existing faculty to training in the area of developmental education. For example, professional development opportunities such as conferences, interactive trainings, and practical workshops can be offered to bolster experience with development education amongst graduate students, faculty at HBCUs and research institutions, and faculty who have not studied developmental education or taught a developmental course. Advocates should also create training opportunities for faculty at colleges and universities who do not offer developmental education by exposing them to ways to incorporate developmental practices into mainstream courses. Practices such as supplemental instruction, learning labs, and freshman seminars have all been found to be successful in assisting

underprepared students earn success in introductory and gateway courses (Arendale, 2005; NADE, 2011).

Implications for Research

The paucity of literature on the topic of faculty beliefs about developmental education leaves the field ripe for future study. Throughout the discussion of results, several recommendations were made to enhance future replications of the current study. Such recommendations include:

- the exploration of contemporary HBCU missions and values to determine if the current institution context is substantially different from that of HBCU origins,
- using precise definitions for each faculty rank and status on the Faculty Beliefs Scale that would allow for consistent comparison across institutions,
- oversampling of English and mathematics faculty and adding other discipline categories to the Faculty Beliefs Scale to determine if academic discipline affects the formation of faculty beliefs about developmental education,
- asking Faculty Beliefs Scale respondents to indicate the content or the depth of their readings on developmental education,
- adding items on the Faculty Beliefs Scale that explore faculty member degrees in terms of discipline, highest degree earned, and degree granting institutions, and
- surveying faculty from private institutions.

Beyond the initial recommendations, the findings of this study have additional implications for research. The statistically significant predictors of faculty beliefs have low effect sizes, indicating that elements in this study are not the driving force behind faculty beliefs formation. This prompts further research into the components of early faculty training and socialization that most influence the formation of faculty beliefs about developmental education. Another avenue of future research would be to take a qualitative look at the formation of faculty beliefs at HBCUs and research institution. A qualitative analysis would complement the work done by Bustillos (2007) at community colleges and provide richer feedback to the quantitative responses in the current study. Finally, the expansion of the research to additional states would bring added dimensions to the study. Researchers could determine if results are consistent across different policies governing the provision of developmental education or if state policy is an unaccounted for independent variable.

Conclusions

The future of developmental education across the nation has strong implications for higher education access, equity, and inclusion. Underprepared high school graduates and underserved college student populations deserve a chance at college completion and developmental education has played a role in achieving that end. Whether or not faculty beliefs firmly determine the provision of developmental education is still yet to be determined. Nevertheless, the results of this survey provide insight into the range of faculty beliefs about developmental education and their connection to institutional type, faculty rank, and level of experience. Future research expanding on these findings will

assist in helping faculty to gain experience in the field with hopes of improving their opinions and practice of developmental education across all institution types.

REFERENCES

Alfonso, M. (2006). The impact of community college attendance on baccalaureate attainment. *Research in Higher Education, 47*(8), 873-903.

Alliance for Excellent Education. (2011). Saving now and saving later: how high school reform can reduce the nation's wasted remediation dollars. Retrieved from: http://all4ed.org/wp-content/uploads/2013/06/SavingNowSavingLaterRemediation.pdf

Allen, W. R., & Jewell , J. O. (2002). A backward glance forward: Past, present, and future perspectives on historically black colleges and universities. *Review of Higher Education, 25*(3), 241-261. doi:10.1353/rhe.2002.0007

American Association of Community Colleges. (2012). *Reclaiming the American Dream: A report from the 21st-Century Commission on the Future of Community Colleges.* Washington, DC: Author. Retrieved from http://www.aacc.nche.edu/21stCenturyReport

American Association of University Professors. (2010). Mission and description. Retrieved from: http://www.aaup.org/AAUP/about/mission/

Arendale, D. R. (2002a). A memory sometimes ignored: The history of developmental education. *Learning Assistance Review, 7*(1), 5-13.

Arendale. D. R. (2002b). Then and now: The early years of developmental education. *Research and Teaching in Developmental Education, 18*(2), 5-23.

Arendale, D. R. (2005). Terms of endearment: Words that define and guide developmental education. *Journal of College Reading and Learning, 35*(2), 66-82.

Association of American Colleges and Universities. (2006). Academic freedom and educational responsibility. Retrieved from http://www.aacu.org/about/statements/academic_freedom.cfm

Aud, S., Hussar, W., Planty, M., Snyder, T., Bianco, K., Fox, M…. Drake, L. (2010). *The condition of education 2010* (NCES 2010-028). Washington, DC: U.S. Government Printing Office.

Ayers, D. F. (2005). Neoliberal ideology in community college mission statements: A critical discourse analysis. *The Review of Higher Education, 28*(4), 527-549.

Bailey, T. (2009). Challenge and Opportunity: Rethinking the Role and Function of Developmental Education in Community College. *New Directions for Community Colleges,* 145, 11-30. doi:10.1002/cc

Bailey, T., & Morest, V. S. (Eds.) (2006). *Defending the community college equity agenda*. Baltimore, MD: Johns Hopkins University Press.

Beech, J. M. (2011). *Gateway to opportunity? A history of the community college in the United States.* Sterling, VA: Stylus.

Bettinger, E. P., & Long, B. (2009). Addressing the needs of underprepared students in higher education: Does college remediation work? *Journal of Human Resources*, *44*(3), 736-771.

Bettinger, E., & Long, B. (2004). *Shape up or ship out: The effects of remediation on students at four-year colleges.* (NBER Working Paper. No. 10369). Retrieved from http://www.nber.org/papers/w10369

Birnbaum, R. (1991). *How colleges work: The cybernetics of academic organization and leadership*. San Francisco: Jossey-Bass.

Boatman, A., Long, B., & National Center for Postsecondary Research, (2010). *Does Remediation Work for All Students? How the Effects of Postsecondary Remedial and Developmental Courses Vary by Level of Academic Preparation.* (NCPR Working Paper. No. 17988). New York, NY: NCPR. Retrieved from http://www.postsecondaryresearch.org/i/a/document/17998_Aug2010Brief.pdf

Boston University (2007). Classification of ranks and titles. *Faculty handbook*. Retrieved from http://www.bu.edu/handbook/appointments-and-promotions/classification-of-ranks-and-titles/

Boylan, H. (2002). *What works: Research-based best practices in developmental education*. (1st ed.). Boone, NC: Continuous Quality Improvement Network/National Center for Developmental Education.

Boylan, H. R., & White, W. G. (1987). Educating all the nation's people: The historical roots of developmental education. *Review of Research in Developmental Education, 5*(3), 1-4.

Boylan, H. R., Bonham, B. S., & White, S. R. (1999). Developmental and remedial education in postsecondary education. *New Directions for Higher Education*, (108), 87-101.

Bragg, D. D. (2001). Community college access, mission, and outcomes: Considering intriguing intersections and challenges. *Peabody Journal of Education, 76*(1), 93-116.

Brier, E. (1984). Bridging the academic preparation gap: An historical view. *Journal of Developmental & Remedial Education, 8*(1), 2-5.

Brint, S., & Karabel, J. (1989). *The diverted dream: Community colleges and the promise of educational opportunity in America, 1900-1985.* New York, NY: Oxford University Press.

Brown v. Board of Education of Topeka, 347 U.S. 483 (1954).

Brown, M. C., Donahoo, S., & Bertrand, R. D. (2001). The Black college and the quest for educational opportunity. *Urban Education,* 36(5), 553-571. doi:10.1177/0042085901365002

Bustillos, L. T. (2007). *Exploring faculty beliefs about remedial mathematics students: A collaborative inquiry approach*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 304807482).

Calcagno, J., & Long, B. (2008). *The impact of postsecondary remediation using a regression discontinuity approach: Addressing endogenous sorting and noncompliance*. (NCPR Working Paper. No. 14194) New York, NY: NCPR. Retrieved from http://www.nber.org/papers/w14194

Cantey, N., Bland, R., Mack, L., & Joy-Davis, D. (2013). Historically Black Colleges and Universities: Sustaining a Culture of Excellence in the Twenty-First Century.

Journal of African American Studies, *17*(2), 142-153. doi:10.1007/s12111-011-9191-0

Carnegie Foundation for the Advancement of Teaching. (2010). Carnegie Classification [Data file]. Retrieved from http://classifications.carnegiefoundation.org/resources

Carnegie Foundation for the Advancement of Teaching. (n.d.). Basic Classification. Retrieved from http://classifications.carnegiefoundation.org/descriptions/basic.php

Casazza, M. E. (1999). Who are we and where did we come from? *Journal of Developmental Education*, *23*(1), 2-6.

Casazza, M. E., & Silverman, S. L. (1996). *Learning assistance and developmental education: A guide for effective practice*. San Francisco, CA: Jossey-Bass.

Clark, B. R. (1960). The "cooling out" function in higher education. *American Journal of Sociology*, *65*, 569-576.

Cohen, A. M. (1998). *The shaping of American higher education: Emergence and growth of the contemporary system*. San Francisco, CA: Jossey-Bass.

De Simone, D. M. (2001). Identity of the university professor is formulated over time requiring self-discovery followed by being an intellectual scholar and teacher. *Education*, *122*(2), 283.

Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York: Macmillan.

Dougherty, K. J. (1992). Community colleges and baccalaureate attainment. *Journal of Higher Education*, *63*(2), 188-214.

Dougherty, K. J. (1994). *The contradictory college: The conflicting origins, impacts, and futures of the community college*. Albany, NY: State University of New York Press.

Dougherty, K. J., & Townsend, B. K. (2006). Community college missions: A theoretical and historical perspective. *New Directions for Community Colleges*, (136), 5-13. doi:10.1002/cc.254

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160. doi:10.3758/BRM.41.4.1149

Federal Department of Labor: Bureau of Labor Statistics. (2012). *Employment Projections– 2010-20* (USDL Publication No. ADM 12-0160). Washington, DC: U.S. Government Printing Office.

Gasman, M. (2008). Minority-serving institutions: An historical backdrop. In M. Gasman, B. Baez, & C. S. Turner (Eds.). *Understanding minority-serving institutions* (pp. 18-27). Albany, NY: State University of New York Press.

Gasman, M. & Bowman, N. (2011). How to paint a better portrait of HBCUs. *Academe, 97*(3). Retrieved from: http://www.aaup.org/AAUP/pubsres/academe/2011/MJ/Feat/gasm.htm

Harris, D. J. (1983). *College faculty attitudes toward teaching students in remedial/developmental education programs.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 3031888684).

Harris, O., III (2012). From margin to center: Participating in village pedagogy at historically Black colleges and universities. *Urban Review*, *44*(3), 332-357. doi:10.1007/s11256-012-0199-0

Higher Education Act of 1965, Pub.L. 89−329, 20 USC § 1070.

Higher Education Opportunity Act of 2008, Pub. L. 110-315 §. 721, 110th Cong., 1st Sess. (1993)

Hill, S. T. (1985). *The traditionally Black institutions of higher education 1860 to 1982*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: Government Printing Office.

Ignash, J. M. (1997). Who should provide post-secondary remedial/developmental education? *New Directions for Community Colleges*, (100), 5-20. doi:10.1002/cc.10001

Jackson, C. L. (2001). *African American education: A reference handbook.* Santa Barbara, CA: ABC-CLIO.

Joliet Junior College (n.d.). About. Retrieved from http://www.jjc.edu/about/Pages/default.aspx

Kane, T. J., & Rouse, C. E. (2006). The community college: Educating students at the margin between and college work. In B. Townsend & D. Bragg (Eds.). *ASHE reader on community colleges* (3rd ed., pp. 95-111). Boston, MA: Pearson.

Kezar, A. (2004). Obtaining integrity? Reviewing and examining the charter between higher education and society. *The Review of Higher Education*, *27*(4), 429-459.

Kezar, A. (2011). Organizational culture and its impact on partnering between community agencies and postsecondary institutions to help low-income students attend college. *Education and Urban Society, 43*(2), 205-243.

Leyser, Y., Greenberger, L., Sharoni, V., & Vogel, G. (2011). Students with disabilities in teacher education: Changes in faculty attitudes toward accommodations over ten years. *International Journal of Special Education, 26*(1), 162-174.

Li, X., & Carroll, C. D. (2007). *Characteristics of minority-serving institutions and minority*

undergraduates enrolled in these institutions (NCES 2008-156). Washington, DC: U.S. Government Printing Office.

Markus, T., & Zeitlin, A. (1993). Remediation in American higher education: A "new" phenomenon? *Community Review, 13*(1), 13-23.

Martorell, P., & McFarlin, I. (2009). Help or hindrance? The effects of college remediation on academic and labor market outcomes. *Review of Economics & Statistics, 93*(2), 436-454.

Maxwell, M. (1997). *Improving student learning skills: A new edition*. Clearwater, FL: H&H.

Meier, K. M. (2008). *The community college mission: History and theory, 1930-2000*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 3336699).

Merisotis, J. P, & Phipps, R. A. (2000). Remedial education in colleges and universities: What's really going on? *The Review of Higher Education, 24*(1), 67-85.

Moore, R., Jensen, M., & Hatch, J. (2002). The retention of developmental students at four-year and two-year institutions. *Research and Teaching in Developmental Education*, *19*(1), 5-13.

Morrill Act of 1862, §. 301, 7th Cong., 2nd. Sess. (1862)

Morrill Act of 1890, §. 321, 51st Cong., 1st. Sess. (1890)

Morrison, J. D. (2008). Faculty governance and nontenure-track appointments. *New Directions for Higher Education,* 143, 21-27.

Murray, C., Wren, C. T., Stevens, E. & Keys, C. (2009). Project PLuS: Promoting university faculty and staff awareness of students with learning disabilities. *Journal of Postsecondary Education and Disability*, 22, 117-129.

National Association of Developmental Education. (1998). Need for developmental education at four-year institutions. Retrieved from: http://www.nade.net/2documents/publications/Resolutions/New/Resolution%20Need%20for%20DE%20Final%202.2.11.pdf

National Association of Developmental Education. (2011). Definition. Retrieved from http://www.nade.net/AboutDevEd.html#Definition

National Education Association. (n.d.) Faculty governance in higher education. Retrieved from http://www.nea.org/home/34743.htm

Nelson, C. (2011). Reforming faculty identity. *Academe*, 97(4), 56.

Noonan, B. M., Sedlacek, W. E. & Veerasamy, S. (2005). Employing noncognitive variables in admitting and advising community college students. *Community College Journal of Research and Practice*. *29,* 463-469.

Parelius, R. J. (1993). Remediation in a research university: An organizational analysis. *Journal of The First-Year Experience & Students in Transition, 5*(2), 191-194. Retrieved from http://fyesit.metapress.com/content/J182H6U277738238

Parker, T. (2007). Ending college remediation: Consequences f or access and opportunity. *ASHE/Lumina Policy Briefs and Critical Essays*, (2). Ames: Iowa State University, Department of Educational Leadership and Policy Studies.

Parker, T. L., Bustillos, L. T., & Behringer, L. B. (2010). *Remedial and developmental policy at a crossroads*. Retrieved from: www.gettingpastgo.org/docs/Literature-Review-GPG.pdf

Parsad, B. & Lewis, L. (2003). *Remedial education at degree-granting postsecondary institutions in Fall 2000* (NCES 2004-010). Washington, DC: U.S. Government Printing Office.

Provasnik, S., & Shafer, L. L. (2004). *Historically Black colleges and universities, 1976 to 2001* (NCES 2004–062). Washington, DC: U.S. Government Printing Office.

Reybold, L. E. (2003). Pathways to the professorate: The development of faculty identity in education. *Innovative Higher Education,* 27(4), 235-252.

Roebuck, J. B., & Murty, K. S. (1993). *Historically Black colleges and universities: Their place in American higher education.* Westport, CT: Praeger.

Russell, A. (2008). *Enhancing college student success through developmental education*. Washington, DC: American Association of State Colleges and Universities.

Saunders, D. B. (2010). Neoliberal ideology and public higher education in the United States. *Journal for Critical Education Policy Studies, 8*(1), 41-77.

Saxon, D. P., & Boylan, H. R. (2001). The cost of remedial education in higher education. *Journal of Developmental Education, 25*(2), 2-8.

Sedlacek, W. E. (2004). *Beyond the big test: non-cognitive assessment in higher education*. San Francisco, CA: Jossey-Bass.

Sedlacek, W. E. (2011). The situational attitude scale. Retrieved from http://williamsedlacek.info/publications/surveys/SAS%20Forms.doc

Sedlacek, W. E., & Brooks, G. C., Jr. (1970). Measuring racial attitudes in a situational context. *Psychological Reports*, 27, 971-980.

Sedlacek, W. E., & Brooks, G. C., Jr. (1971). Social acceptability in the measurement of racial

Shamos, M. I. (2002). *Handbook of Academic Titles.* Retrieved from http://euro.ecom.cmu.edu/titles/titlebook.htm

Smerek, R. E. (2010). Cultural perspectives of academia: Toward a mode of cultural complexity. In J. C. Smart (Ed.), *Higher Education handbook of theory and research, Vol. 25* (pp. 381-423). Dordrecht, Netherlands: Springer.

Smith, M. (2012). *Choosing who delivers: The impact of placing limits on the delivery of remedial education at four-year institutions*. Retrieved from http://gettingpastgo.org/wp-content/uploads/2012/06/GPG_Choosing-Who-Delivers.pdf

Spickelmier, D. O. (1972). *Two-year community college faculty attitudes toward educationally disadvantaged students*.

Stahl, N. (2002). Historical perspectives: With hindsight we gain foresight. In D. B. Lundale & J. L. Higbee (Eds.), *Histories of developmental education* (pp.10-13). Minneapolis, MN: Center for Research on Developmental Education and Urban Literacy, University of Minnesota.

Thelin, J. R. (2004). *A history of American higher education*. Baltimore, MD: The Johns Hopkins University Press.

United States Department of Education, National Center for Educational Statistics. (2011). *Profile of degree/certificate seeking entering undergraduate students, by control and level of institution.* Retrieved from: http://nces.ed.gov/pubs2011/2011252.pdf

United States Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System. (2012). *IPEDS Data Center* [Data Set]. Available from http://nces.ed.gov/ipeds/datacenter/Default.aspx

United States Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System. (2013). *IPEDS Data Center* [Data Set]. Available from http://nces.ed.gov/ipeds/datacenter/Default.aspx

University of North Carolina at Chapel Hill (2014). Faculty Appointments. *Faculty policies, procedures & guidelines*. Retrieved from: http://academicpersonnel.unc.edu/faculty-policies-procedures-guidelines/faculty-appointments/

Weidman, J. C., Twale, D., & Stein, E. (2001). Socialization of graduate and professional students in higher education: A perilous passage? *ASHE-ERIC Higher Education Report*, *28*(3), 1-112.

Wilensky, R. (2007). High schools have got it bad for higher ed-and that ain't good. *Phi Delta Kappan*, *89*(4), 248-256, 258-259.

Witt, A. A., Wattenbarger, J. L., Gollattscheck, J. F., Suppiger J. E. (1994). *America's community colleges: The first century*. Washington, DC: American Association of Community Colleges.

Zook, G. (1947). *Higher education for American democracy, a report.* Washington, DC: U. S. Government Printing Office.

APPENDIX A

FACULTY BELIEFS SCALE

Q1 This is a survey designed to gauge faculty perceptions of developmental education programs. For the purposes of this survey:

Developmental Education Post-secondary courses designed to help students who have earned a high school diploma (or its equivalency) develop the academic skills necessary to be successful in college-level courses. Developmental education courses are generally not counted toward college graduation requirements and are often below the 100-course level.

The researcher is interested only in your opinion. There is no right or wrong answer. Whether you agree or disagree with any statement, you can be sure that many other college faculty members feel the same way you do.

Q2 Indicate the name of the college/university where you teach. If you teach at multiple institutions, please mark the institution where you carry your primary teaching load.

- ❍ Central Carolina Community College (1)
- ❍ Davidson County Community College (2)
- ❍ North Carolina Central University (3)
- ❍ The University of North Carolina at Greensboro (4)
- ❍ The University of North Carolina at Charlotte (5)
- ❍ Winston Salem State University (6)

Q3 Indicate the highest degree you have attained.

- ❍ Bachelors (1)
- ❍ Masters (2)
- ❍ Doctorate (3)
- ❍ Other (Please Specify) (4) _____

Q4 Indicate your academic rank.
- ❍ Teaching Assistant/Graduate Assistant (1)
- ❍ Instructor/Adjunct Faculty Member/Lecturer (2)
- ❍ Assistant Professor (3)
- ❍ Associate Professor (4)
- ❍ Full Professor (5)
- ❍ Other (Please Specify) (6) _____

Q5 Indicate the area of your primary teaching assignment.
- ❍ English (Including Reading & Writing) (1)
- ❍ Mathematics (2)
- ❍ History (3)
- ❍ Science (4)
- ❍ Other (Please Specify) (5) _____

Q6 Indicate the total number of years you have taught at the post-secondary level.
- ❍ Under 2 years (1)
- ❍ 2-5 years (2)
- ❍ 6-10 years (3)
- ❍ 11-15 years (4)
- ❍ 16+ (5)

Q7 Indicate the total number of years you have taught at your current institution.
- ❍ Under 2 years (1)
- ❍ 2-5 years (2)
- ❍ 6-10 years (3)
- ❍ 11-15 years (4)
- ❍ 16+ (5)

Q8 How many times have you taught developmental education courses?
- ❍ 0 (1)
- ❍ 1-3 (2)
- ❍ 4-6 (3)
- ❍ 7+ (4)

Answer If 0 Is Not Selected

Q9 How were you appointed to teach developmental courses?

- ❍ Volunteered (1)
- ❍ Assigned (2)
- ❍ Both (3)

Q10 What type of training did you received about teaching developmental education courses?

- ❑ Did not receive training (1)
- ❑ I have read material about teaching developmental education courses (2)
- ❑ I have participated in a workshop about teaching developmental education courses (3)
- ❑ Other (Please Specify) (4) _____
- ❑ I have taken a class about teaching developmental education courses (5)

Q11 Have you ever taken a developmental education course at a post-secondary institution?

- ❍ Yes (1)
- ❍ No (2)

Q12 Please read every statement and respond to it in terms of your own personal agreement or disagreement. For the purposes of this study:
Developmental Education is defined as courses that seek to help students establish the basic skills necessary to be successful at the college level.
Underprepared Students are defined as college students who have demonstrated a need for developmental education as evidences by standardized placement or aptitude tests.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
An increase in the number of college students who need developmental education courses leads to a "watering down" of the curriculum. (1)	❍	❍	❍	❍	❍
College students who need developmental education courses threaten the teaching success of faculty members. (2)	❍	❍	❍	❍	❍
Students in developmental education courses are incapable of successfully completing college level courses. (3)	❍	❍	❍	❍	❍
College students who need developmental education courses should be directed into community colleges. (4)	❍	❍	❍	❍	❍
College students taking developmental education courses usually assume little responsibility for their own learning. (5)	❍	❍	❍	❍	❍
College students who need developmental education courses should be directed to enroll only at community colleges. (6)	❍	❍	❍	❍	❍

Teaching students in developmental education courses demands too much of an instructor's time. (7)	❍	❍	❍	❍	❍
College instructors should not have to focus their instruction at the level of underprepared students. (8)	❍	❍	❍	❍	❍
Only community colleges should offer developmental education courses. (9)	❍	❍	❍	❍	❍
My institution could eliminate the need for developmental education courses by increasing admissions standards. (10)	❍	❍	❍	❍	❍
The money used to fund developmental education courses should be reallocated to courses in traditional academic disciplines. (11)	❍	❍	❍	❍	❍
Developmental education courses distract from my institution's educational mission. (12)	❍	❍	❍	❍	❍
Offering developmental education courses will negatively impact my institution's academic reputation. (13)	❍	❍	❍	❍	❍

APPENDIX B

SPICKELMIER APPROVAL LETTER

The Office of Research Compliance
The University of North Carolina at Greensboro
2714 MHRA Building
1111 Spring Garden Street
Greensboro, NC 27412

Dear UNCG IRB,

The purpose of this letter is to grant Torry L. Reynolds of the University of North Carolina at Greensboro permission to use the Inventory of Faculty Attitudes from my 1972 dissertation entitled *Two-Year Community College Faculty Attitudes toward Educationally Disadvantaged Students* in her research.

Sincerely,

Don Spickelmier

Don O. Spickelmier
PO Box 163847
Sacramento, CA 95816

Carry on my friend!

APPENDIX C

FACULTY BELIEFS SCALE RELIABILITY STATISTICS

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.900	.902	13

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
i1	30.96	72.751	.604	.461	.893
i2	31.53	72.922	.626	.486	.892
i3	32.06	76.457	.557	.347	.895
i4	31.12	75.159	.523	.438	.897
i5	31.86	77.471	.485	.281	.898
i6	31.70	74.439	.623	.565	.892
i7	31.45	75.044	.588	.392	.894
i8	30.73	72.042	.592	.399	.894
i9	31.77	74.674	.598	.486	.893
i10	31.11	73.888	.542	.331	.896
i11	31.57	73.184	.704	.562	.889
i12	31.74	71.605	.767	.670	.885
i13	31.65	72.926	.698	.577	.889

Descriptive Statistics

	N	Range	Min	Max	Sum	*Mean*		*SD*	Variance
	Stat	Stat	Stat	Stat	Stat	Stat	Std. Error	Stat	Stat
i1	690	4	1	5	2172	3.15	.045	1.172	1.374
i2	690	4	1	5	1778	2.58	.043	1.123	1.260
i3	688	4	1	5	1408	2.05	.035	.910	.828
i4	690	4	1	5	2062	2.99	.042	1.091	1.190
i5	688	4	1	5	1547	2.25	.035	.919	.845
i6	689	4	1	5	1654	2.40	.038	.997	.993
i7	688	4	1	5	1834	2.67	.038	1.003	1.006
i8	690	4	1	5	2337	3.39	.048	1.251	1.564
i9	689	4	1	5	1608	2.33	.038	1.010	1.019
i10	689	4	1	5	2065	3.00	.045	1.170	1.369
i11	689	4	1	5	1747	2.54	.038	.992	.985
i12	690	4	1	5	1635	2.37	.040	1.042	1.087
i13	688	4	1	5	1689	2.45	.039	1.020	1.040
Total Score	690	52	13	65	23536	34.11	.353	9.269	85.915

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
i1	30.96	72.751	.604	.461	.893
i2	31.53	72.922	.626	.486	.892
i3	32.06	76.457	.557	.347	.895
i4	31.12	75.159	.523	.438	.897
i5	31.86	77.471	.485	.281	.898
i6	31.70	74.439	.623	.565	.892
i7	31.45	75.044	.588	.392	.894
i8	30.73	72.042	.592	.399	.894
i9	31.77	74.674	.598	.486	.893
i10	31.11	73.888	.542	.331	.896
i11	31.57	73.184	.704	.562	.889
i12	31.74	71.605	.767	.670	.885
i13	31.65	72.926	.698	.577	.889